PHOTOFACT* FOLDER SET

*TRADE MARK

NO. 58

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The PHOTOFACT Servicer

March 15, 1949 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ Vol. 6, Nos. 57 & 58

WITH RESPECT TO ISSUANCE OF THE PHOTOFACT SERVICER

The recent omission of the Servicer from PHOTOFACT Sets 55 and 57 occasioned a large number of inquiries as to its status.

It is our feeling that the best answer we can provide is to list, quite frankly, the basis for such omissions; past, present or future. Briefly, the considerations are as follows:

1. We want each issue of the Servicer to be genuinely interesting and helpful. To meet those requirements, the material included must be timely and accurate. It is difficult, especially in view of fast-breaking developments in the electronic field, to do full justice to these needs on a PHOTOFACT Set-by-Set deadline basis.

2. We will never knowingly issue a Servicer made up from copy of doubtful value or accuracy, merely to meet a deadline.

3. The Servicer omission from Set 55 was followed by inclusion of a doubled Servicer in Set 56. Similarly, this issue is larger, since it contains data which might have been used in Set 57. This should not be interpreted as a precedent, but it does seem sensible to follow this practice if it results in a more worthwhile publication.

4. Summarizing, our present planning is to make Servicer size and frequency of issuance reflect the worth and need of available material, rather than adherence to a fixed content and deadline policy.

NEW PARTICIPATING MANUFACTURERS in PHOTOFACT FOLDERS

We take pride in announcing the association of two new component parts manufacturers with the PHOTOFACT Family.

Effective with PHOTOFACT Set 59, we will start to list correct replacement part numbers for products of the Chicago Transformer Division of the Essex Wire Corporation, 3501 Addison Street, Chicago, Illinois, and the Erie Resistor Corporation of Erie, Penn.

The Chicago Transformer Division manufactures a line of replacement power transformers, filter reactors, driver and interstage units, output transformers, etc.; in other words, the units most subject to replacement in conventional radio and sound applications. They also have available a number of special television replacement components.

The Chicago Transformer Division has, for many years, been a major supplier of original equipment parts in many well-known makes of electronic equipment. Therefore, we feel that we are particularly fortunate in being able to provide PHOTOFACT users with listings of replacement parts of this respected quality.

Perhaps a word of explanation is in order with respect to the products of the Erie Re-

sistor Corporation, which will be listed in PHOTOFACT Folders.

Actually, the units involved are ceramic capacitors of various sizes, shapes, finishes, and temperature coefficients. With the advent of television and similar very high frequency (VHF) services, the proper application of ceramic capacitors assumes major importance.

We know that you will appreciate the help of PHOTOFACT Folder specifications in making highly satisfactory and speedy repair jobs on critical applications.

The Erie Resistor Corporation is a large supplier of ceramic, and ceramic-type, capacitors for the original equipment field, and their affiliation with PHOTOFACT adds another replacement product listing of known highest quality.

* * *

TELEVISION INSTALLATION TOOLS

The continually increasing interest in TV has been reflected in the number of inquiries we receive on both Service and Installation problems.

One question which has been asked most frequently concerns information on small, light-weight ladders for use in antenna installation. We contacted the Duraladd Products Corporation, Route 29, Dunellen, New Jersey, for literature on their product suitable for this purpose, and they supplied us with a sample for the illustrations shown under the accompanying Figures 1 and 2.

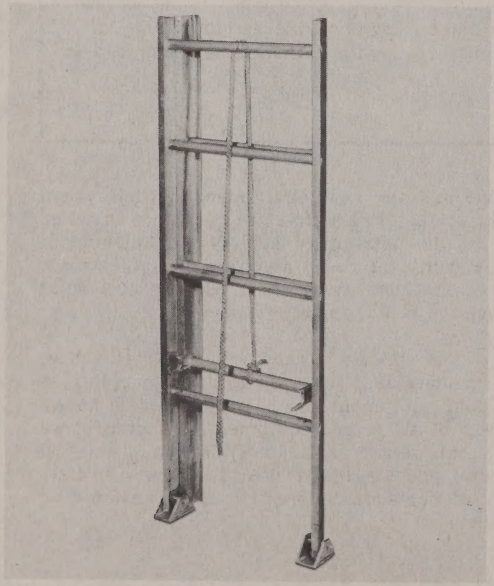

Figure 1 is a photograph of a ladder section in normal carrying position.

Figure 2 shows a ladder section extended in an actual application.

This unit is extremely light in weight since it is constructed of duraluminum, and it has the feature of being easily extended by simply pulling on the rope which runs through the top rung of the fixed section. The sections, of course, are of channel construction and telescope easily to occupy a minimum amount of space in transport. Self-latching snaps are provided for ease of operation in extension, with a maximum degree of safety.

We would like to express our thanks to the Duraladd Products Corporation for their assistance in providing this data.

* * *

SIGNS OF THE TIME

Along with the first robins . . . the marbles, and the kite flying, signifying the advent of spring, come the first stirrings of concern for the family auto radio.

This music box may have been allowed to rest all winter in deference to the condition of the battery, but with the first sign of warm weather and open windows comes the desire for sweet music as you ride. It certainly is in order to check your supply of such popular auto radio replacement components as tubes, vibrators, antennas, speakers, buffer capacitors, etc.

A little time and study devoted to planning an efficient auto radio service layout will return very nice dividends. By efficient, we mean a shop layout of such design that removal and reinstallation can be handled in a minimum amount of time, with a consequent lowered cost to the customer. Also, do not forget there are still a number of automobiles that are not radio equipped, and there is still good money to be had in new installations.

Get your share of this lucrative business, whether it be new installations or service jobs.

. . . Which reminds us, we have to pick up a replacement speaker on the way home to keep peace in the family.

* * *

WE APOLOGIZE . . . .

Photofact Set 53, Folder 8, provides service information on the Concord Amplifiers, Models 315WL - 315WM. The second line on Page 1, following the outside view of the amplifier, is in error. The supplier should be identified as Concord Radio Corporation, 901-11 West Jackson Boulevard, Chicago 7, Illinois

We sincerely regret our error in identification on this model.

* * *

Photofact Set 43, Folders 24 and 25 -

Folder 24 provides service information on the Zenith Models 7H820 and 7H820W (chassis 7E01). Page 1 of subject folder is identified correctly. The ear copy on Pages 3, 5, and 7 is in error, since this material still applies to the same model numbers appearing on Page 1.

Folder 25, on Zenith Models 9H881, 9H882R, 9H885, and 9H888 (chassis 9E21), is correctly identified on Page 1. The ear copy of Pages 3, 5, and 7 is in error, since all these pages actually apply to the 9H series as identified on the first page. Actually, the two ear-copy identifications were reversed during the printing operation, and we suggest that you make a notation on your folders indicating the correct models on pages 3, 5, and 7 of each folder.

* * *

FIELD EXPERIENCES

Here is your opportunity for passing practical service experiences to others for the benefit of all. For every service "Field Experience" published, we issue to the author a certificate that is good for one PHOTOFACT FOLDER Set. Since it is impossible to verify the accuracy of contributions, we cannot be responsible for either the diagnosis made of the receiver trouble, or the results which will be obtained by following the suggested repair routine. All contributions become the property of Howard W. Sams & Co., Inc.

* * *

FADA P-80

Photofact Set 27, Folder 9

Complaint: Receiver operates properly when used on batteries but when used on AC-DC, one or more tubes burn out.

Cause: Check filament bypass (Item 6), 150 mfd. at 15 v., to see if it has become shorted.

Remedy: Replace defective unit.

Submitted by: John W. Raczek,
Telesound Radio Co.,
293 Fairmount Ave., Newark, N. J.

* * *

FADA 1000

Photofact Set 1, Folder 17

Complaint: Hum after 1-1/2 to 2 hours' operation, increasing in volume until the signal is blocked out.

Cause: I found that the speaker, mounted directly over the 35B5 and 35W4, was so heated by these tubes that it affected the movement of the speaker voice coil.

Remedy: I cemented a strip of asbestos paper on bright metal and bolted the metal to the chassis, bright side to the tube, and asbestos away from the tube, and bent it to form a reflector and insulator over the top of the tube. In this case, the speaker was replaced because it was permanently damaged by heat. I have had no complaints on this set since then.

Submitted by: Calvin Gregg,
of Modern Radio Service,
1238 Palo Alto Street,
Pittsburgh, Pennsylvania

FORD 8MF880
Photofact Set 42, Folder 12

Complaint: Set cuts in and out.

Cause: The audio shorting switch (Photofact Item 95) in the push-button tuning assembly sticks due to binding of the rivet in the pivot of the shorting switch assembly.

Remedy: Drill out the rivet and replace with a small bolt with a spring washer between to keep it snug; then solder the nut to the bolt so that it will not jiggle loose.

Submitted by: Alvin H. Pudelko,
of Pudelko's Radio Service,
R. F. D. 1, Snover, Michigan

* * *

REGAL L76
Photofact Set 5, Folder 18

Complaint: Intermittent operation and fading.

Remedy: I had three of these sets in my shop with the same complaint, and after checking all tubes and capacitors, I found the trouble to be in the connection of the output cathode resistor, Photofact Item 31. Go over connection of this resistor at the tube socket with a soldering iron, to make sure that the solder flows and makes a secure joint. This cleared the trouble on all three sets.

Submitted by: Charles E. Ganler,
of Radio Service, 1023 Cuml. Street,
Lebanon, Pennsylvania

* * *

OLDSMOBILE 982420
Photofact Set 57, Folder 12

Complaint: Noisy push buttons. The slightest jar on the push-button assembly would cause popping noise in the speaker.

Remedy: The customer had actually wedged the push buttons with match sticks to stop the noise. Replacing a troublesome 7E6 did not correct the difficulty. The trouble was finally traced down to loose shield cans around the RF coils. Soldering the cans to the metal baseesupporting the coils eliminated the noise.

Submitted by: J. R. Nakken,
of Epperson's, Court and College Sts.,
Woodland, California

ZENITH 8H023-8H034
Photofact Set 4, Folder 10

Complaint: Repeated breaking of dial drive cord.

Cause: Inspection will reveal about 1/32 inch end play of the tuning shaft, which results in a slot between the tuning shaft and the washer at the rear of the shaft. Placing a hairpin washer behind this washer eliminates the end play and the breakage of the dial drive cord.

Submitted by: C. W. Battels,
of Battles Radio, Electronics Service,
559 Wooster Ave., Akron 7, Ohio

* * *

MOPAR 802 (Revised)
Photofact Set 42, Folder 19

Complaint: Radio worked O. K. but car would run down.

Description: With power switch in off position a spark was noticed when connecting the battery to the radio. Also when the radio A-lead was connected to the hot side of the ignition switch in the car the battery would run down quickly.

Cause: Field coil in the speaker was connected to the hot side of the power switch in the radio so that it remained across the battery when the radio switch was turned off.

Remedy: Connect the brown wire from the speaker with the brown wire on the terminal strip.

Submitted by: Arthur E. Dibble,
New Albany, Pennsylvania

* * *

PHILCO 46-1201 (Revised)
Photofact Set 29, Folder 21

Complaint: Hum and Distortion.

Remedy: Check 80-ohm Candohm Filament Dropping Resistor for possible short to chassis, which in this set is not common ground. Make sure candohm resistor is properly insulated.

Submitted by: R. W. Smith,
of Smith Radio Service, 408 Wilson Ave.,
Brooklyn 21, New York

AIRCASTLE
MODEL 10023

AIRCASTLE, MODEL 10023

TRADE NAME	Aircastle, Model 10023
SUPPLIER	Spiegel, Inc., 1061 W. 35th St. Chicago, Illinois
TYPE SET	AC Operated Combination Phono-Radio, Superheterodyne Receiver with Loop Antenna.
TUBES (FIVE)	Types 12BE6 Converter, 12BA6 IF Amp., 12AT6 DET-AVC-AF, 50B5 Power Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD cap. in series with low side of signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1 MFD	High side to the rear stator of tuning cap. Low side to B-.	455KC	Tuning cap fully open	Across Voice Coil	A1, A2	Adjust for maximum output. If isolation transformer is not used reduce dummy antenna to .001 MFD to reduce hum modulation.
2.	200MMFD	High side to Loop primary terminal. Low side to B-.	1620KC	Tuning cap fully open	Across Voice Coil	A3	Adjust for maximum output.
3.	200MMFD	High side to Loop primary terminal. Low side to B-.	1400KC	Tune for maximum output.	Across Voice Coil	A4	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

AIRCASTLE MODEL 10023

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRCASTLE PART No.	STANDARD REPLACEMENT		
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	DET-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIRCASTLE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	50	150	CL-10007	PRS-A150/	EDL5315	DSB-5030-150	TA-530	Filter Red
B	30	150		30-50				Filter Green
7	.05	400	CPP-14503	484-05	GT4S5	ST-4-05	TC-15	Line Filter
8	.01	400	CPP-14103	484-01	GT4S1	ST-4-01	TC-11	Output Plate Bypass
9	.005	600	CPP-12502	684-005	GT6D5	ST-6-005	TC-25	Audio Coupling
10	.002	600	CPP-12202	684-002	GT6D2	ST-6-002	TC-22	Audio Coupling
11	.003	600	CPP-12502	684-003	GT6D3	ST-6-003	TC-23	Tone Comp.
12	.01	200	CPP-14103	484-01	GT2S1	ST-4-01	TC-11	Phono Tone Comp.
13	.01	200	CPP-12103	484-01	GT2S1	ST-4-01	TC-11	AVC Filter
14	.05	400	CPP-14503	484-05	GT4S5	ST-4-05	72P1	Line Isolation
15	240	300	CMP-15251	1468-00025	5W5T25	M05.325	1FM-325	RF Diode Filter

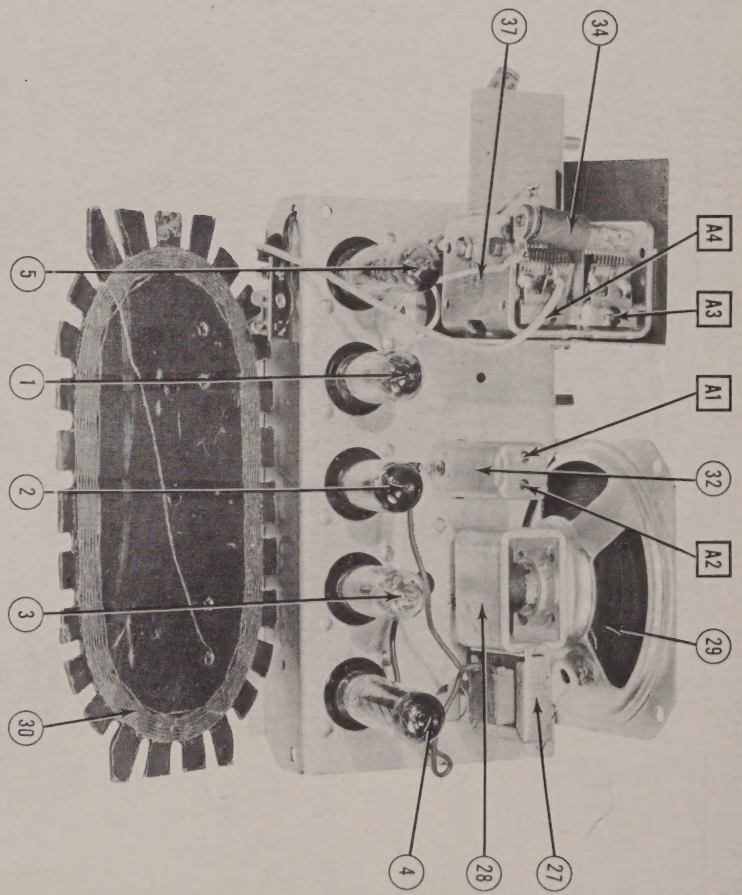
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	AIRCASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	1 Meg.	½	VC-101.05	D13-137	M-63-Z	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 16A Per Instructions
C	Switch		Not Req.	41	SW-A	Attach to 16A Per Instructions
17A	1 Meg.	½	VC-11107	D13-137	M-63-Z	Tone Control
B	Shaft		Not Req.	A	Not Req.	Attach to 17A Per Instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	AIRCASTLE PART No.	IRC PART No.		
18	22KΩ	½	RC-12002	BTS-22K	Red-Red-Or.	Osc. Grid
19	2.2 Meg.	½	RC-12204	BTS-2.2 Meg.	Red-Red-Grn.	AVC Net.
20	22KΩ	½	RC-12002	BTS-22K	Red-Red.Or.	IF Plate Coil Shunt
21	150KΩ	½	RC-11503	BTS-150K	Br.-Grn.-Yl.	Diode Filter
22	10 Meg.	½	RC-11005	BTS-10 Meg.	Br.-Blk.-Blue	AF Grid
23	220KΩ	½	RC-12205	BTS-220K	Red-Red-Yl.	AF Plate Load
24	470KΩ	½	RC-14703	BTS-470K	Yl.-Vi.-Yl.	Output Grid
25	15Ω	½	RC-11500	BW-½-150	Br.-Grn.-Br.	Output Cathode
26	1000Ω	½	RC-31001	BTS-1000	Br.-Blk.-Red	Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRCASTLE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
27	1800Ω	3.2Ω	186Ω	.5Ω	TO-10000	A-3876#	T22845#	A-2928#	# Bend mounting tabs down, file out slots and mount on original brackets.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRCASTLE PART No.	JENSEN PART No.	QUAM PART No.	
28	FIELD	V C Imp.		ST-113		
	PM	3.2Ω		MOD P4-X	4A07	
29	CONE DIA	V C DIA				
	4 IN.	9/16 IN.				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIRCASTLE PART No.	MEISSNER PART No.	
30	Loop Ant.	1Ω	3.5Ω	ALP-10004A		
31	Osc. Coil		7.5Ω	TRC-10014	14-1060*	* Add 50MMF Cap. from high side of tuning cap to Osc. grid.
32	Input IF	19Ω	19Ω	TS-10017x	16-6678	
33	Output IF	36Ω		TRF-10020		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRCASTLE PART No.		
34	Bayonet	6-8V	0.15A	Brown			Type #47

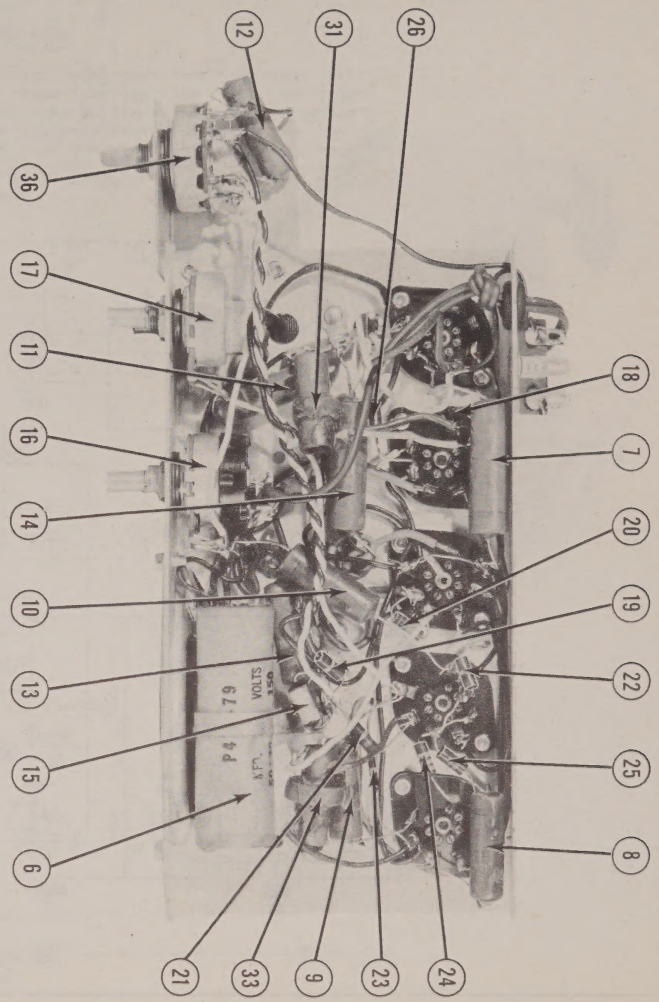
PHONO CARTRIDGE

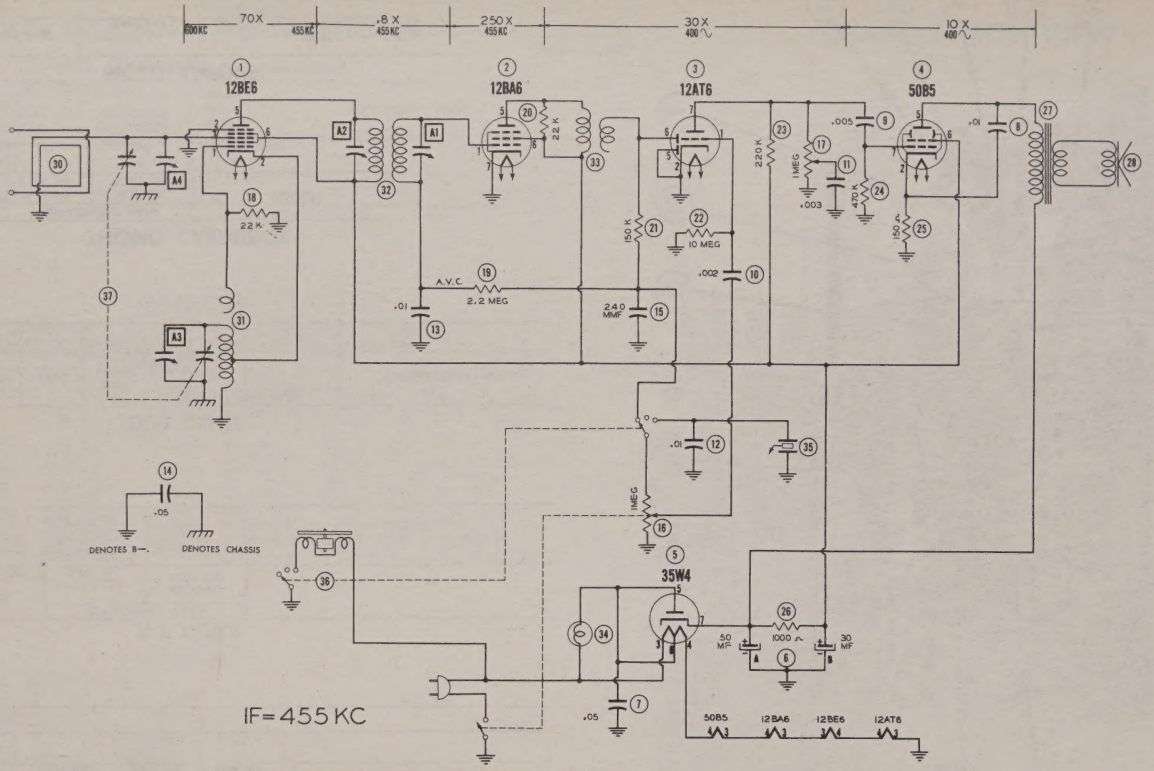
ITEM No.	REPLACEMENT DATA		REMARKS
	AIRCASTLE PART No.	ASTATIC PART No.	
35		508 L40A	Arm Cartridge

MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
36	Switch		Phono-Radio
37	2 gang Var. Cap	CV-10010	(24-457MMF, 30-189MMF)

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS — RADIO-PHONO SWITCH IN RADIO POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	6-8.6VDC	0V	26VAC	13VAC	95VDC	95VDC	0V
2	12BA6	-.4VDC	0V	26VAC	40VAC	95VDC	95VDC	0V
3	12AT6	-.6VDC	0V	0V	13VAC	0V	-.2VDC	55VDC
4	50B5	0V	6.7VDC	40VAC	86VAC	112VDC	95VDC	0V
5	35W4	0V	0V	86VAC	117VAC	112VAC	112VAC	120VDC

TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	22KΩ	.5Ω	25Ω	13Ω	50KΩ	50KΩ	3.5Ω
2	12BA6	3.2 Meg.	0Ω	25Ω	38Ω	50KΩ	50KΩ	0Ω
3	12AT6	10 Meg.	0Ω	0Ω	13Ω	0Ω	1.1 Meg.	270KΩ
4	50B5	470KΩ	150Ω	38Ω	85Ω	50KΩ	50KΩ	470KΩ
5	35W4	INF	INF	85Ω	108Ω	105Ω	105Ω	50KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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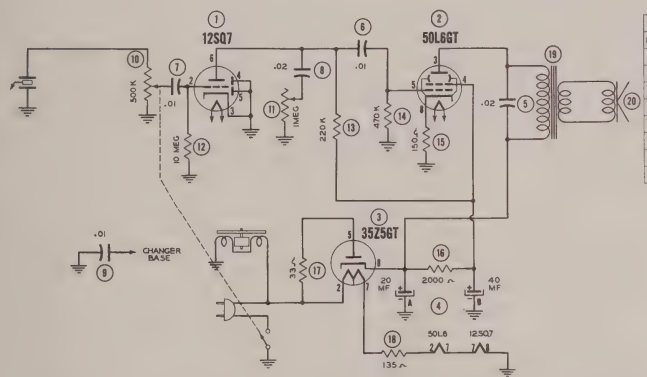
496-1

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIRCASTLE, MODEL 10024-1

TRADE NAME	Aircastle, Model 10024-1
SUPPLIER	Spiegel Inc., 1061 W. 35th St., Chicago, Illinois
TYPE SET	AC Operated Phono Player with Three Tube Amplifier
TUBES (THREE)	Types 12SQ7GT AF Amp., 50L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC RATING .22 Amp. @ 117 Volts AC



Pin No.	12SQ7GT Volt.	12SQ7GT Res.	50L6GT Volt.	50L6GT Res.
1	0V	0Ω	0V	INF
2	-4.9VDC	10.7MEG	250VAC	90Ω
3	0V	0Ω	116VDC	100KΩ
4	0V	INF	117VDC	100KΩ
5	0V	INF	0V	470KΩ
6	72VDC	324KΩ	0V	INF
7	12VAC	1Ω	12VAC	1Ω
8	0V	10Ω	0VDC	135Ω

Pin No.	35Z5GT Volt.	35Z5GT Res.
1	0V	INF
2	117VAC	240Ω
3	107VAC	220Ω
4	133VDC	100KΩ
5	113VAC	265Ω
6	0V	INF
7	84VAC	200Ω
8	133VDC	100KΩ

RESISTANCE READINGS IN THE B- CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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496-2

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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DATE 3/49 496-2 SET #58 FOLDER #2

AIRCASTLE
MODEL 10024-1

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.	12SQ7GT	12SQ7GT	8Q	
2	Power Output	50L6GT	50L6GT	7AC	
3	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRCASTLE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	40	150	CE-KH-4	PRSA150/40-20	EDL4215	DSB-3X20-150*	TA-240	Filter Red
B	20	150						Filter Blue
5	.02	400	CP-12-5	484-02	GT4S2	ST-4-02	TC-12	Output Plate Bypass
6	.01	200	CP-11-5	484-01	GT2S1	ST-4-01	TC-11	Audio Coupling
7	.01	400	CP-11-5	484-01	GT4S1	ST-4-01	TC-11	Audio Coupling
8	.02	400	CP-12-5	484-02	GT4S2	ST-4-02	TC-12	Tone Comp.
9	.01	300	CP-11-5	464-01	GT4S1	ST-4-01	TC-11	Changer Isolation

*- Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
10A	500KΩ	½	VC-504-S	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 10A Per Instructions
C	Switch		Not Req.	41	SW-A	Attach to 10A Per Instructions
11A	1 Meg.	½	VC-105-0	D11-137	M-61-S	Tone Control
B	Shaft		Not Req.	A	Not Req.	Attach to 11A Per Instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	IDENTIFICATION CODES	
12	10 Meg.	½	RC-106-C	BTS-10 Meg.	Br.-Blk.-Blue	AF Grid
13	220KΩ	½	RC-224-C	BTS-220K	Red-Red-Yl.	AF Plate Load
14	470KΩ	½	RC-474-C	BTS-470K	Yl.-Vi.-Yl.	Output Grid
15	150Ω	½	RC-151-C	BW-½-150	Br.-Grn.-Br.	Output Cathode
16	2000Ω	½	RC-222-C	BTS-2200	Red-Blk.-Red	Filter
17	33Ω	5	RC-33X-C		Or.-Or.-Blk.	Rect. Ballast
18	135Ω	5	RW-135X-H	ABA-150		Line Dropping See Note

Note: On IRC replacement set slider 135Ω from one end.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIRCASTLE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
19	1600Ω	3.1Ω	134Ω	.4Ω	TOS-20-3	A-3876#	T22S45#	A-2928#	# Drill new mounting holes.

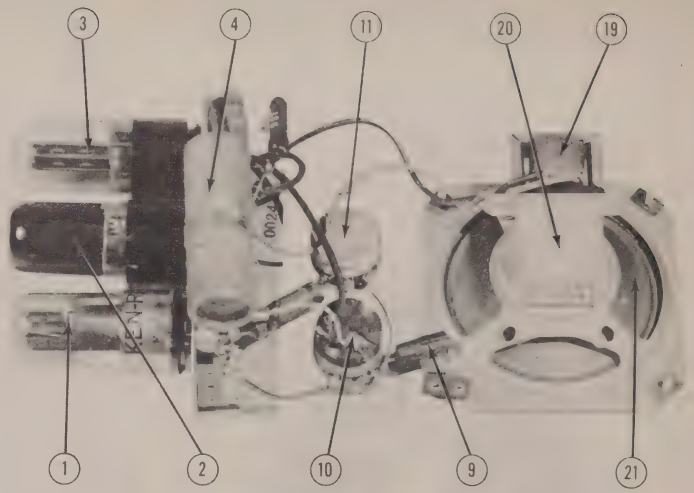
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: AIRCASTLE PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. Imp.				
20	PM	3.1Ω	SR-4	ST-113 MOD.P4-X	4A07	
21	CONE DIA.	V. C. DIA.				
	4 IN	9/16 IN				

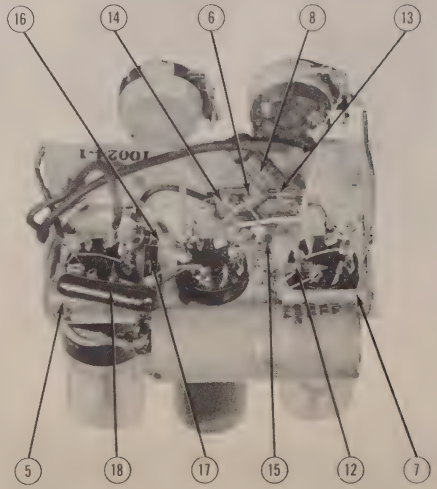
PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: ASTATIC PART No.	REMARKS
22	CC-1	L-72A	

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



PHOTOFACT* Folder

*TRADE MARK

AIR KING MODELS
A-1000, A-1001

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AIR KING MODELS
A-1000, A-1001

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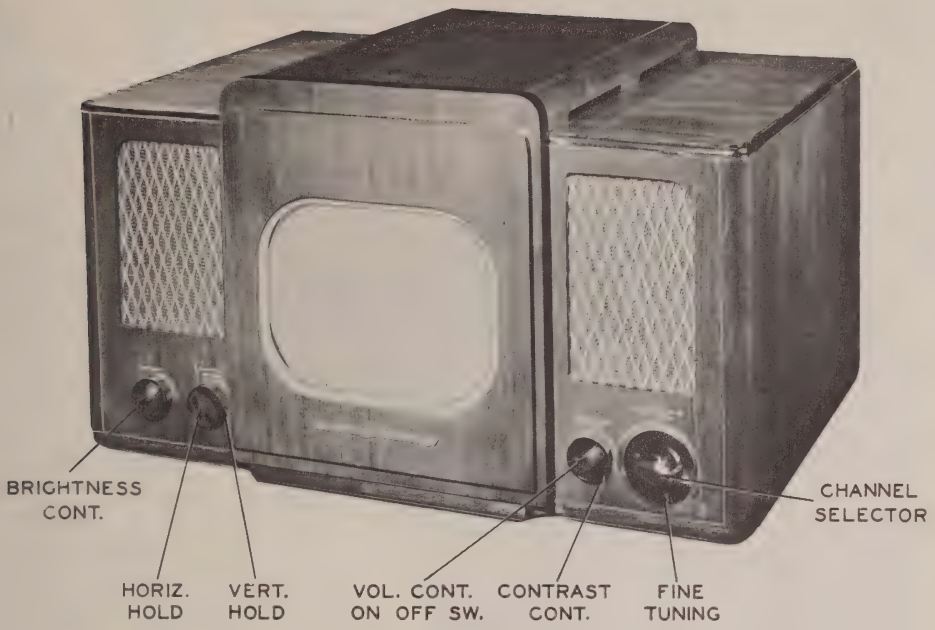
Date 3/49—No. 496-3 Set No. 58—Folder No. 3

PHOTOFACT* Folder

AIR KING
MODELS A-1000, A-1001



AIR KING
MODELS A-1000, A-1001

MODEL A-1000

TRADE NAME	Air King, Models A-1000, A-1001
MANUFACTURER	Air King Products Company , 170 53rd Street, Brooklyn, New York.
TYPE SET	Television Receiver
TUBES	Thirty
POWER SUPPLY	105-125 Volts, 60 cycle AC
TUNING RANGE—	Channels 1 through 13 RATING 2.5 Amps @ 117 Volts

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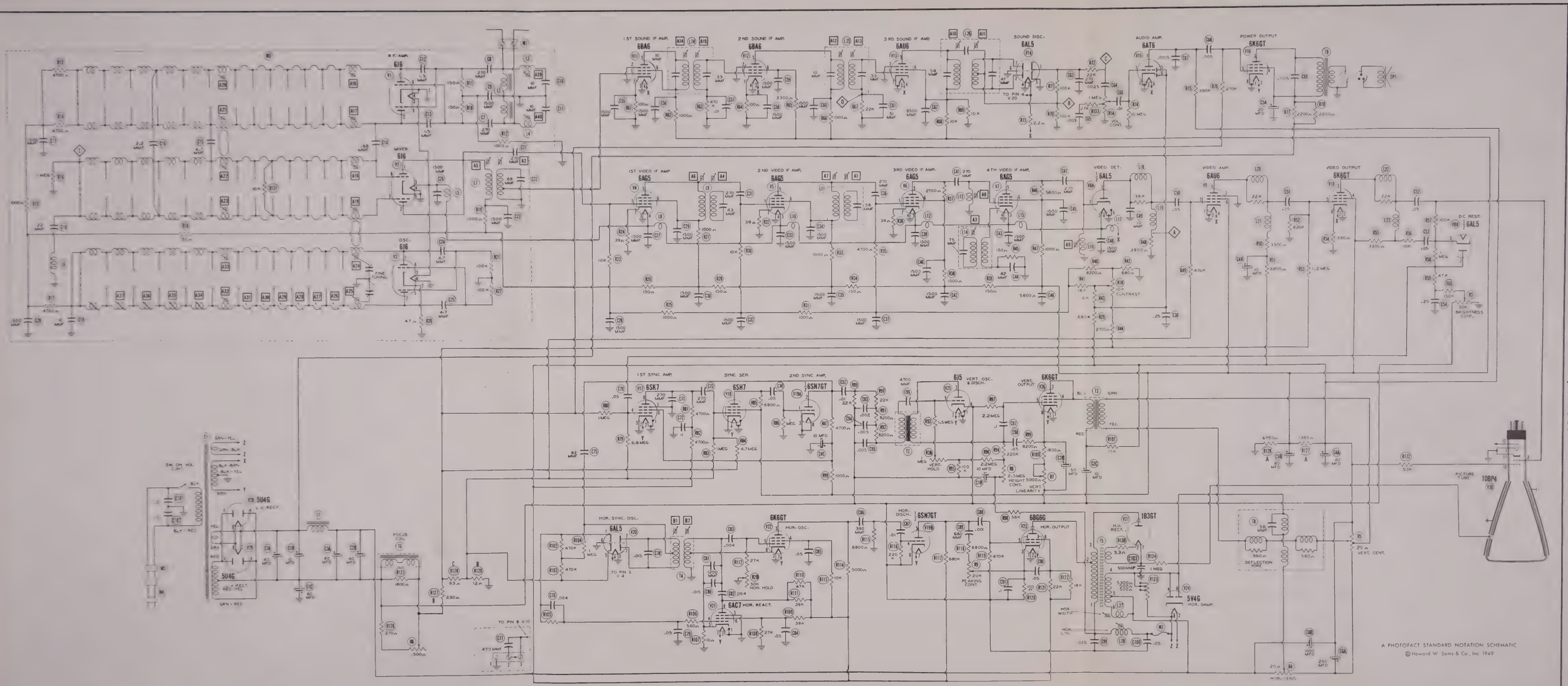
DATE 3/49 496-3 SET #58 FOLDER #3


AIR KING
MODELS A-1000, A-1001
R.F. AMP. 6J6
MIXER 6J6
OSC. 6J6
1ST SOUND IF AMP. 6BA6
2ND SOUND IF AMP. 6BA6
3RD SOUND IF AMP. 6AU6
SOUND DISC. 6AL5
AUDIO AMP. 6AT6
POWER OUTPUT 6K6GT
1ST VIDEO IF AMP. 6AG5
2ND VIDEO IF AMP. 6AG5
3RD VIDEO IF AMP. 6AG5
4TH VIDEO IF AMP. 6AG5
VIDEO DET. 6AL5
VIDEO AMP. 6AU6
VIDEO OUTPUT 6K6GT
D.C. REST. 6AL5
1ST SYNC AMP. 6SK7
SYNC SEP. 6SH7
2ND SYNC AMP. 6SN7GT
VERT. OSC. & DISCH. 6J5
VERT. OUTPUT 6K6GT
HOR. SYNC. DISC. 6AL5
HOR. OSC. 6K6GT
6AC7 HOR. REACT.
HOR. DISCH. 6SN7GT
HOR. OUTPUT 6BG6G
1B3GT H.V. RECT.
5V4G HOR. DAMP.
5U4G L.V. RECT.
PICTURE TUBE 10BP4
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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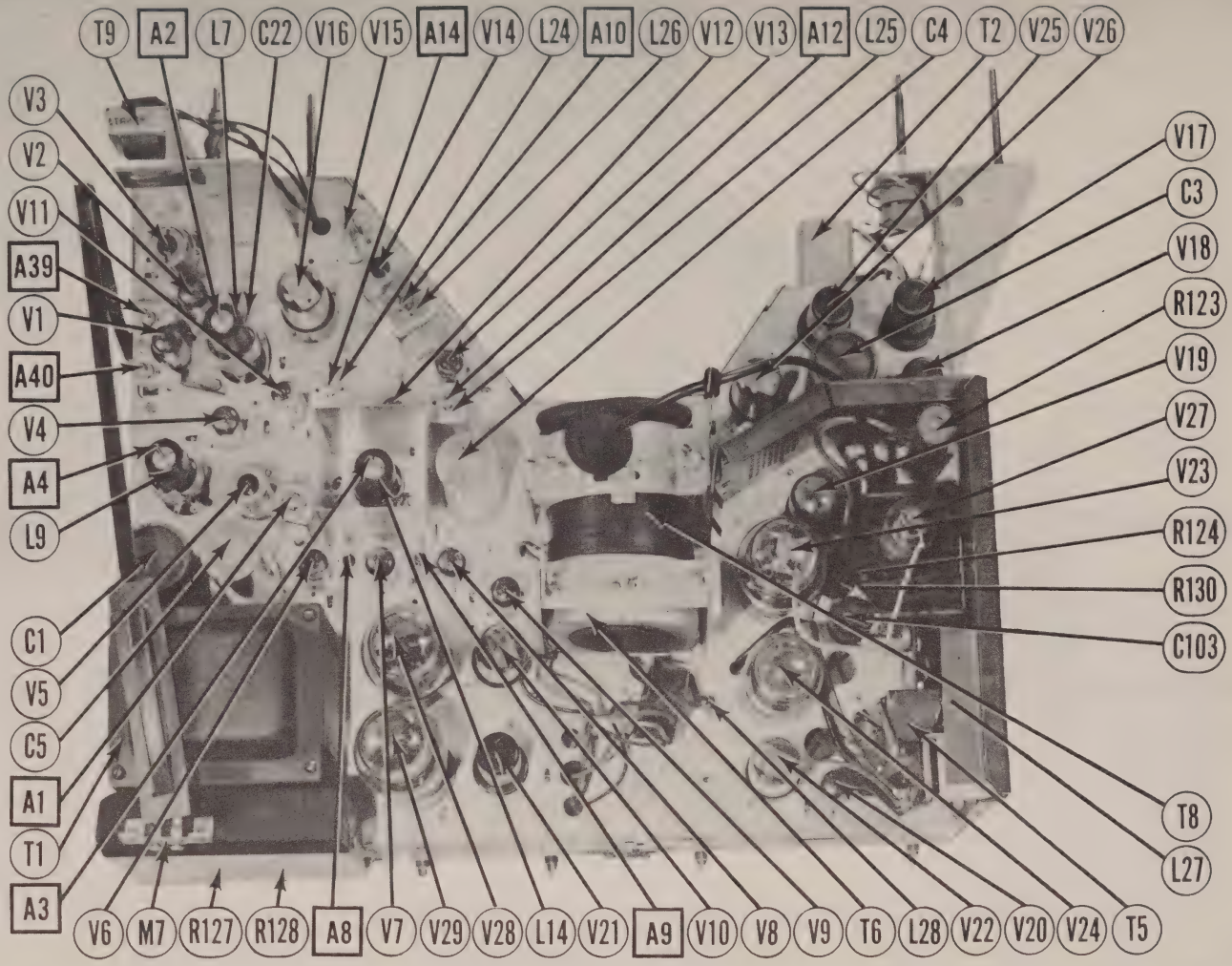
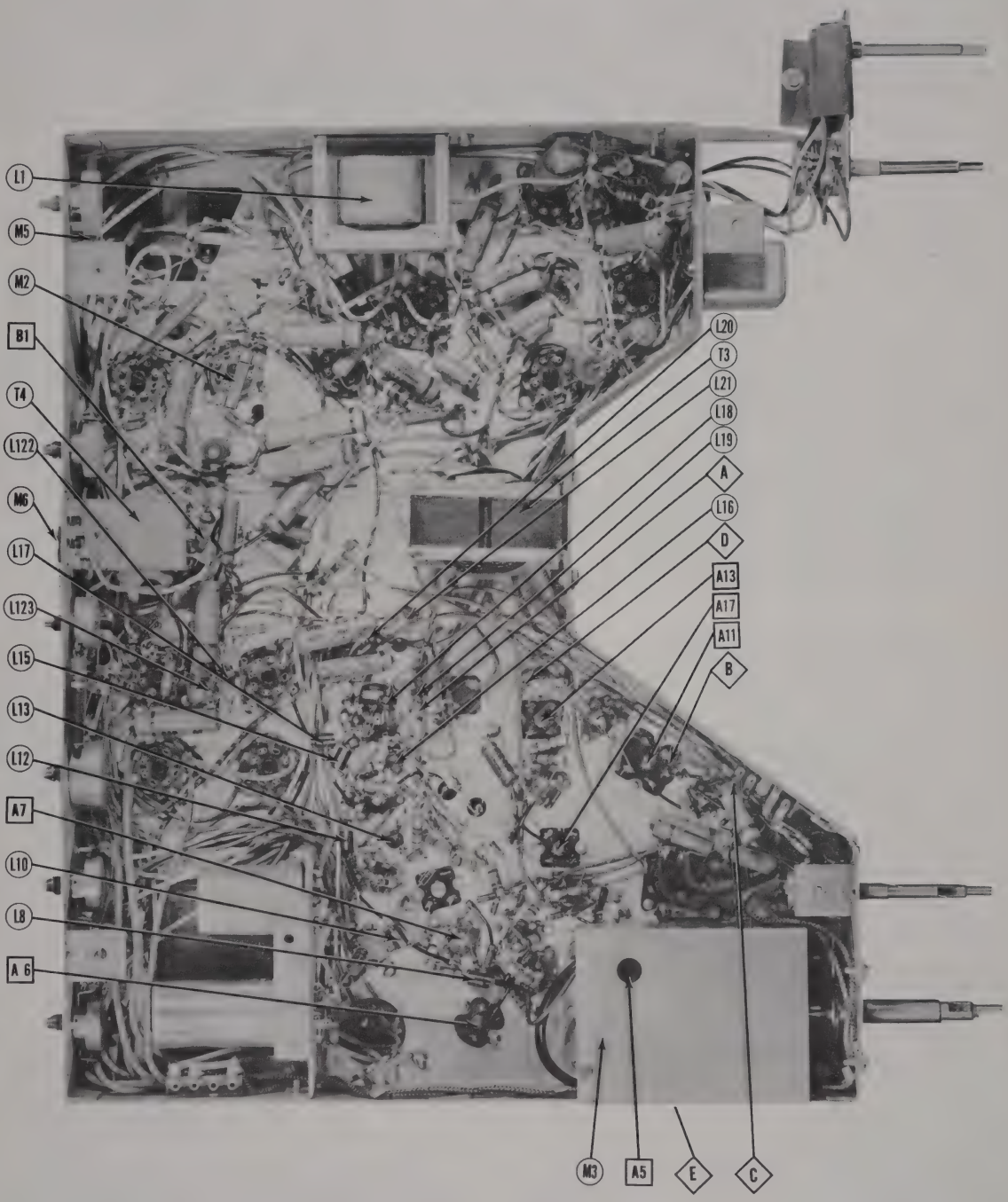
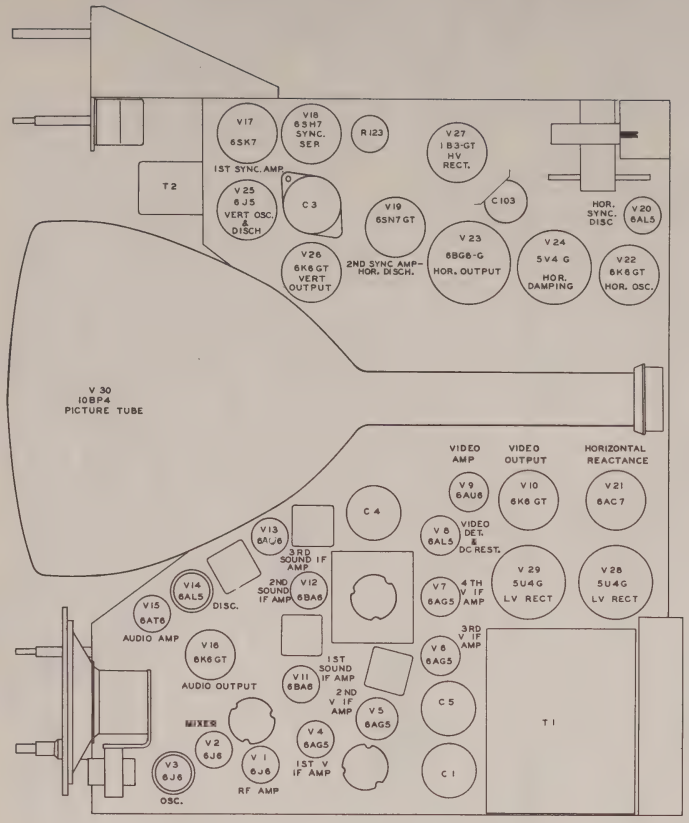


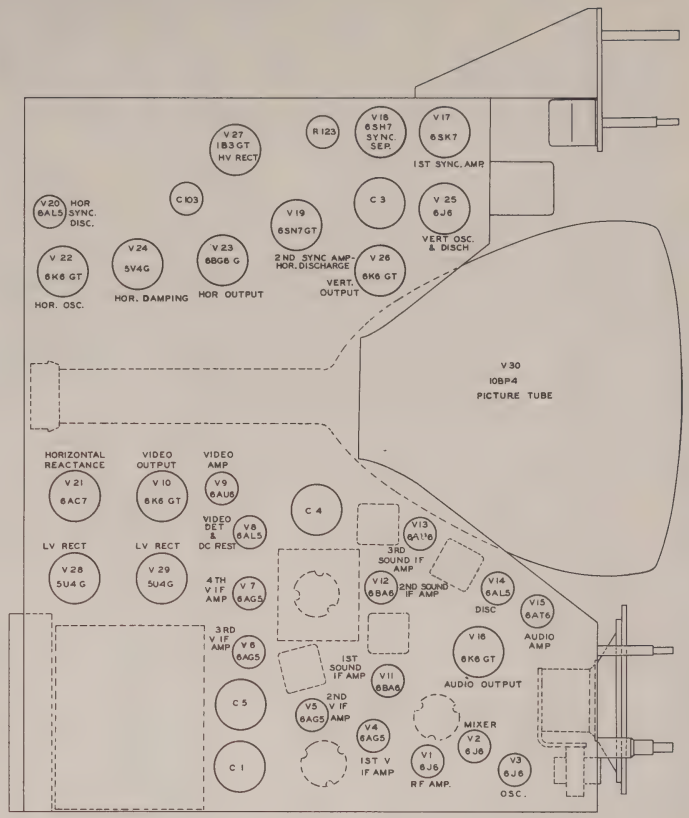
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

PRE – ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

If alignment is performed with picture tube removed, remove V22 from its socket to disable the high voltage supply.

The oscillator tube (V3) should be removed when performing IF adjustments. Use insulated alignment screwdriver for adjusting.

VIDEO IF ALIGNMENT

If receiver is badly misaligned making it impossible to get sufficent reading on VTVM with the signal being fed to the ant. terminals, signal may be fed to the mixer grid. This point is accessible through the hole in the chassis on right side of tuner (Point ◈).

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1				9	DC probe to junction of R40 and R41. Common to chassis.		Set contrast control to give a -3 volt reading. Leave at this setting during entire IF Alignment procedure.
2	Direct	To ant. terminals. (See prealignment notes)	19.75MC	9	DC probe to point ◈. Common to chassis.	A1	Adjust for minimum deflection.
3	Direct	"	21.25MC	9	"	A2	"
4	Direct	"	21.25MC	9	"	A3	"
5	Direct	"	27.25MC	9	"	A4	"
6	Direct	"	21.8MC	9	"	A5	Adjust for maximum deflection.
7	Direct	"	25.3MC	9	"	A6	"
8	Direct	"	22.3MC	9	"	A7	"
9	Direct	"	25.2MC	9	"	A8	"
10	Direct	"	23.4MC	9	"	A9	Adjust for maximum deflection. If A7 required adjustment in Step 8 repeat Step 2. If FM signal gen. is not available continue with Step 12.

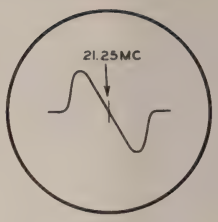


FIG. 1

OVERALL VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal amplifier in the scope for horizontal deflection.

The waveforms shown may be inverted depending on the number of amplifying stages in the vertical amplifier in the scope being used.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11	5000 MMF	To dummy mixer tube. (See Fig. 6).	24MC (10MC sweep)	See Fig. 4.	9	Vert. Amp. to Point ◈. Ground to chassis.	A5,A6, A7,A8, A9	Make slight adjustments if necessary to obtain response curve per Fig. 4. If considerable adjustment is required the traps must be realigned.

FIG. 2

SOUND IF ALIGNMENT USING VTVM

Do not remove the shield covering the discriminator tube socket during Step 12. Fashion hook on 1 Megohm resistor and make connection to Point ◈ through alignment hole in shield.

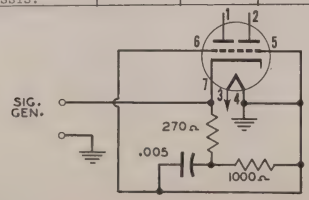
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
12	5000MMF	High side to Pin #1 of 3rd Sound IF (V13). Low side to chassis.	21.25MC	9	DC probe to Point ◈ in series with 1 Meg. Common to chassis.	A10	Detune A11. Adjust A10 for maximum deflection.
13	5000MMF	"	"	9	DC probe to Point ◈. Common to chassis.	A11	Adjust for zero reading. A positive or negative reading is obtained on either side of correct setting.
14	5000MMF	High side to Pin #1 of 2nd Sound IF (V12). Low side to chassis.	"	9	DC probe to Point ◈. Common to chassis	A12,A13	Adjust for maximum deflection.
15	5000MMF	High side to tap on trap winding of L7. Low side to chassis.	"	9	"	A14, A15	"

FIG.4

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12	5000MMF	High side to Pin 1 of 3rd Sound IF (V13). Low side to chassis.	21.25MC (600KC sweep)	21.25MC	9	Vertical amp. to Point ◈. Ground to chassis.	A10,A11	Adjust for maximum amplitude of peaks and straightness of diagonal line with marker at center of line.
13	5000MMF	High side to Pin 1 of 2nd Sound IF (V12). Low side to chassis.	"	"	9	Vert. amp. to Point ◈ in series with 33KΩ. Ground to chassis.	A12,A13	Adjust for maximum amplitude and symmetry per Fig. 2.
14	5000MMF	High side to tap on trap winding of L7. Low side to chassis.	"	"	9	"	A14,A15	Adjust for maximum amplitude and symmetry per Fig. 3. Continue with Step 16.

FIG.5



DUMMY MIXER TUBE

CAREFULLY BEND PIN 7 AT RIGHT ANGLE. CONNECT PINS 5 & 6 TO PIN 4 WHICH IS GROUNDED AT THE SOCKET. CONNECT OTHER COMPONENTS AS SHOWN.

RF & MIXER LINE ALIGNMENT

On those models having the RF Grid returned to the contrast control it is necessary to set the bias at -1.5 volts. Connect DC probe of VTVM to pin 5 or 6 of 1st AF Tube (V15), common to chassis and set contrast control for reading of -1.5 volts.

The signal generator output should be terminated with a resistance equal to its output impedance (usually 50 ohms).

These adjustments are usually very stable and alignment should not be attempted unless they are known to be out of alignment.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
16	120Ω carbon res. in series with each lead	To ant. terminals.	177MC (10MC sweep)	175.25MC and 179.75MC	7	Vert. amp. to Point Ⓔ in series with 10KΩ. Ground to chassis.	A16,A17, A18,A19	Adjust for approx. flat top response per Fig. 5 with markers above 70%.
17	"	"	183MC (10MC sweep)	181.25MC and 185.75MC	8	"		Check for response curve per Fig. 5.
18	"	"	189MC (10MC sweep)	187.25MC and 191.75MC	9	"		"
19	"	"	195MC (10MC sweep)	193.25MC and 197.75MC	10	"		"
20	"	"	201MC (10MC sweep)	199.25MC and 203.75MC	11	"		"
21	"	"	207MC (10MC sweep)	205.25MC and 209.75MC	12	"		"
22	"	"	213MC (10MC sweep)	211.25MC and 215.75MC	13	"		"

If markers are below 70% on any channel make slight adjustment of A16, A17, A18 and A19 with channel selector on that channel. Recheck the other low band channels.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
23	120Ω carbon res. in series with each lead	To ant. terminals.	85MC (10MC sweep)	83.25MC and 87.75MC	6	Vert. amp. to Point Ⓔ in series with 10KΩ. Ground to chassis.	A20,A21 A22,A23	Adjust for approx. flat top response per Fig. 5 with markers above 70%.
24	"	"	79MC (10MC sweep)	77.25MC and 81.75MC	5	"		Check for response curve per Fig. 5.
25	"	"	69MC (10MC sweep)	67.25MC and 71.75MC	4	"		"
26	"	"	63MC (10MC sweep)	61.25MC and 65.75MC	3	"		"
27	"	"	57MC (10MC sweep)	55.25MC and 59.75MC	2	"		"

If markers are below 70% on any channel make slight adjustments of A20, A21, A22 and A23 with channel selector on that channel. Recheck the other high band channels.

OSCILLATOR ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
28	2 - 120Ω carbon res.	To ant. terminals.	215.75MC	13	DC probe to Point Ⓓ. Common to chassis.	A24,A25	Adjust for zero reading. A positive and negative reading is obtained on either side of correct setting. Keep A24 and A25 slugs at approx. the same relative setting.
29	"	"	209.75MC	12	"	A26	Adjust for zero reading as above.
30	"	"	203.75MC	11	"	A27	"
31	"	"	197.75MC	10	"	A28	"
32	"	"	191.75MC	9	"	A29	"
33	"	"	185.75MC	8	"	A30	"
34	"	"	179.75MC	7	"	A31	"
35	"	"	87.75MC	6	"	A32,A33	Adjust for zero reading keeping A32 and A33 slugs at approx. the same relative position.
36	"	"	81.75MC	5	"	A34	Adjust for zero reading.
37	"	"	71.75MC	4	"	A35	" " " "
38	"	"	65.75MC	3	"	A36	" " " "
39	"	"	59.75MC	2	"	A37	" " " "

MIXER GRID TRAP ADJUSTMENT

A. Match the output of the signal generator (usually 50Ω carbon resistor across the gen. output and 120Ω carbon resistors in each lead) and connect to receiver antenna terminals.
B. Connect oscilloscope to Point Ⓔ through 10KΩ.
C. Shunt 1st Video IF Grid to ground with 1000 MMF cap. using shortest possible leads.
D. Loosely couple marker generator to antenna terminals.
E. Turn channel switch and marker generator through low frequency channels and observe response of each channel.
F. Select channel that is essentially flat with sound and picture markers at 80% or more on the response curve.
G. Remove shunt on 1st IF Grid and shunt the 2nd Video IF Grid to ground.
H. Adjust A38 (rear of tuner) for RF response similar to one selected with 1st IF Grid shunted.
NOTE: In later productions A38 is a fixed capacitor (C18). In those receivers this step may be followed as a check that correct mixer operation is obtained.

WAVE TRAP ADJUSTMENT

Wave traps A39 and A40 are used for specific types of interference and their alignment will depend upon the type encountered.

With the receiver tuned to the channel having the interference, set fine tuning control until maximum interference is received. Adjust A39 and A40 for minimum interference in the picture and sound keeping the cores at approximately the same relative position. Then turn one core 1/2 turn and adjust the other for minimum interference.

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
V 1	6J6	50VDC	50VDC	6.2VAC	0V.	-.2VDC	-.2VDC	0V.	-	-
V 2	6J6	95VDC	95VDC	6.2VAC	0V.	-2VDC	-3.1VDC	0V.	-	-
V 3	6J6	55VDC	55VDC	6.2VAC	0V.	-5.4VDC	-5.2VDC	.2VDC	-	-
V 4	6AG5	0V.	0V.	0V.	6.2VAC	95VDC	95VDC	.3VDC	-	-
V 5	6AG5	-.8VDC	.2VDC	6.2VAC	0V.	98VDC	98VDC	.2VDC	-	-
V 6	6AG5	-.8VDC	.2VDC	6.2VAC	0V.	93VDC	105VDC	.2VDC	-	-
V 7	6AG5	0V.	1VDC	6.2VAC	0V.	85VDC	110VDC	1VDC	-	-
V 8	6AL5	0V.	0V.	6.2VAC	0V.	.7VDC	0V.	0V.	-	-
V 9	6AU6	-.6VDC	0V.	0V.	6.2VAC	255VDC	117VDC	0V.	-	-
V 10	6K6GT	0V.	0V.	92VDC	117VDC	-2VDC	0V.	6.2VAC	2.8VDC	-
V 11	6BA6	0V.	0V.	0V.	6.2VAC	103VDC	103VDC	1.4VDC	-	-
V 12	6BA6	0V.	0V.	6.2VAC	0V.	107VDC	105VDC	1VDC	-	-
V 13	6AU6	-.3VDC	0V.	0V.	6.2VAC	45VDC	45VDC	0V.	-	-
V 14	6AL5	2.2VDC	-.4VDC	4.9VAC	0V.	0V.	0V.	-.7VDC	-	-
V 15	6AT6	-.4VDC	0V.	0V.	6.2VAC	-.8VDC	-.8VDC	75VDC	-	-
V 16	6K6GT	0V.	6.2VAC	240VDC	250VDC	-9VDC	0V.	0V.	0V.	-
V 17	6SK7	0V.	0V.	0V.	-.8VDC	0V.	108VDC	6.2VAC	208VDC	-
V 18	6SH7	0V.	0V.	0V.	-2.6VDC	0V.	117VDC	6.2VAC	115VDC	-
V 19	6SN7GT	-1.4VDC	77VDC	0V.	-120VDC	-37VDC	-90VDC	6.2VAC	0V.	-
V 20	6AL5	-.8VDC	-5.8VDC	0V.	4.9VAC	-2VDC	0V.	-6.5VDC	-	-
V 21	6AC7	0V.	0V.	0V.	-.9VDC	0V.	105VDC	6.2VAC	190VDC	-
V 22	6K6GT	0V.	0V.	170VDC	210VDC	-18.5VDC	340VDC	6.2VAC	.3VDC	-
V 23	6BG6-G	0V.	6.2VAC	-82VDC	0V.	-94VDC	0V.	0V.	165VDC	#
V 24	5V4G	0V.	350VDC	0V.	290VDC	0V.	290VDC	0V.	350VDC	-
V 25	6J5	0V.	0V.	-3.2VDC 200VDC	-90VDC	-115VDC	-85VDC	6.2VAC	-90VDC	-
V 26	6K6GT	0V.	6.2VAC	187VDC	187VDC	-55VDC	-67VDC	0V.	-50VDC	-
V 27	1B3GT	#DO NOT	MEASURE.							
V 28	5U4G	0V.	350VDC	0V.	360VAC	0V.	360VAC	0V.	350VDC	-
V 29	5U4G	0V.	350VDC	0V.	360VAC	0V.	360VAC	0V.	350VDC	-
V 30	10BP4	0V.	1VDC	PIN 10 280VDC	PIN 11 0V.	PIN 12 6.2VAC				

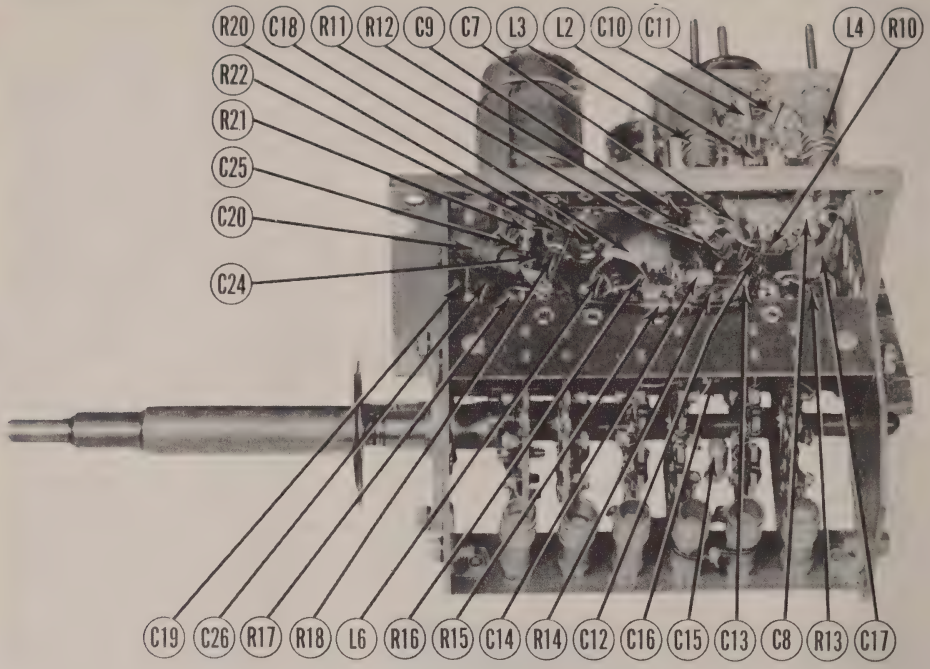
#DO NOT MEASURE.

RESISTANCE READINGS

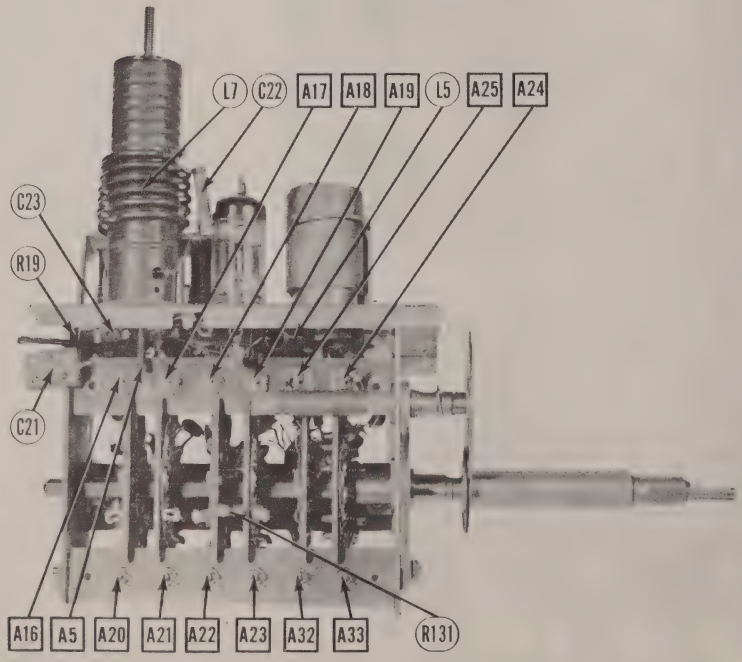
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
V 1	6J6	6KΩ*	6KΩ*	.1Ω	0Ω	1KΩ	1KΩ	0Ω	-	-
V 2	6J6	3KΩ*	3KΩ*	.1Ω	0Ω	1 Meg.	1 Meg.	0Ω	-	-
V 3	6J6	6.8KΩ*	6.8KΩ*	.1Ω	0Ω	100KΩ	100KΩ	47Ω	-	-
V 4	6AG5	17KΩ	40Ω	0Ω	.1Ω	3KΩ*	3KΩ*	40Ω	-	-
V 5	6AG5	16KΩ	40Ω	.1Ω	0Ω	3KΩ*	3KΩ*	40Ω	-	-
V 6	6AG5	10KΩ	40Ω	.1Ω	0Ω	5KΩ*	2.5KΩ*	40Ω	-	-
V 7	6AG5	.2Ω	150Ω	.1Ω	0Ω	7.5KΩ*	2.5KΩ*	150Ω	-	-
V 8	6AL5	.2Ω	100KΩ	.1Ω	0Ω	1.2 Meg.	0Ω	4KΩ	-	-
V 9	6AU6	500KΩ	0Ω	0Ω	.1Ω	9KΩ*	1.4KΩ*	0Ω	-	-
V 10	6K6GT	0Ω	0Ω	4.5KΩ*	1.4KΩ*	500KΩ	INF.	.1Ω	330Ω	-
V 11	6BA6	.1Ω	0Ω	0Ω	.1Ω	2.5KΩ*	2.5KΩ*	100Ω	-	-
V 12	6BA6	500KΩ	0Ω	.1Ω	0Ω	2.5KΩ*	4.2KΩ*	100Ω	-	-
V 13	6AU6	20KΩ	0Ω	0Ω	.1Ω	7KΩ*	7KΩ*	0Ω	-	-
V 14	6AL5	200KΩ	100KΩ	.1Ω	0Ω	0Ω	0Ω	100KΩ	-	-
V 15	6AT6	10 Meg.	0Ω	0Ω	.1Ω	10KΩ	10KΩ	330KΩ*	-	-
V 16	6K6GT	INF.	.1Ω	1.5KΩ*	1KΩ*	250KΩ	260KΩ	0Ω	0Ω	-
V 17	6SK7	0Ω	0Ω	0Ω	900KΩ	0Ω	2.2KΩ*	.1Ω	9KΩ*	-
V 18	6SH7	0Ω	0Ω	0Ω	900KΩ	0Ω	1.4KΩ*	.1Ω	7.5KΩ*	-
V 19	6SN7GT	1.2 Meg.	7KΩ*	0Ω	230KΩ	650KΩ*	450Ω	.1Ω	0Ω	-
V 20	6AL5	900KΩ	1.5 Meg.	0Ω	.1Ω	12Ω	0Ω	1.5 Meg.	-	-
V 21	6AC7	0Ω	0Ω	0Ω	1.4 Meg.	10Ω	18KΩ*	.1Ω	20KΩ*	-
V 22	6K6GT	INF.	0Ω	5KΩ*	10KΩ*	25KΩ	5.8KΩ*	.1Ω	10Ω	-
V 23	6BG6-G	INF.	.1Ω	540Ω	INF.	450KΩ	INF.	0Ω	9.5KΩ*	6KΩ*
V 24	5V4G	INF.	5.5KΩ*	INF.	50Ω*	INF.	50Ω*	INF.	5.5KΩ*	-
V 25	6J5	0Ω	0Ω	280KΩ* 1.3 Meg.*	65KΩ	1.5 Meg.	65KΩ	.1Ω	450Ω	-
V 26	6K6GT	INF.	.1Ω	10KΩ*	10KΩ*	2.5 Meg.	2500Ω	0Ω	2KΩ 6.2KΩ	-
V 27	1B3GT	INF.	INF.	INF.	INF.	INF.	INF.	INF.	INF.	6KΩ*
V 28	5U4G	INF.	5.5KΩ	INF.	460Ω	INF.	460Ω	INF.	5.5KΩ	-
V 29	5U4G	INF.	5.5KΩ	INF.	460Ω	INF.	460Ω	INF.	5.5KΩ	-
V 30	10BP4	0Ω	1.3 Meg.	PIN #10 150KΩ*	PIN #11 0Ω	PIN #12 .1Ω				

*MEASURED FROM PIN 8 OF V28.

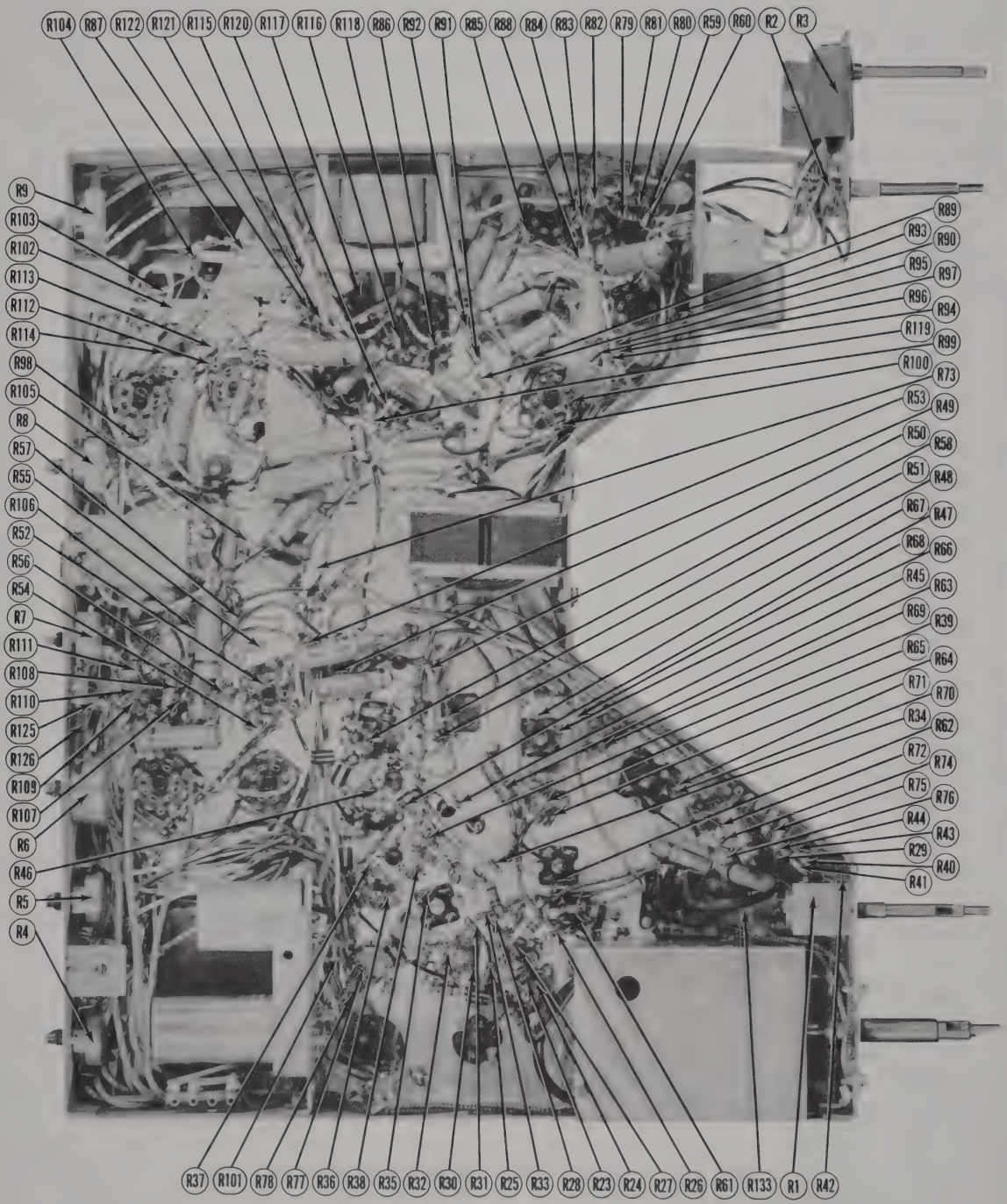
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at maximum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



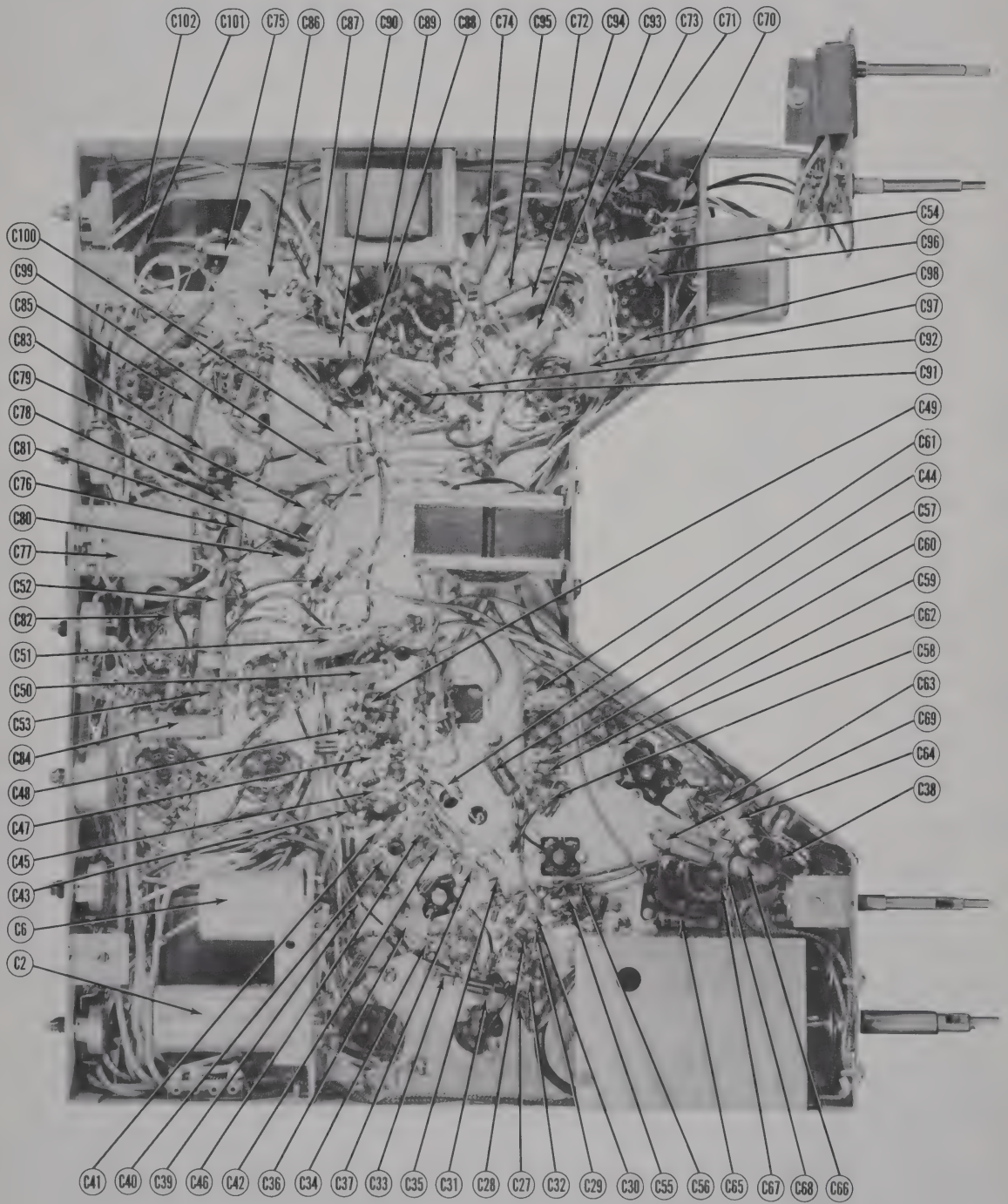
RF TUNER – RIGHT SIDE



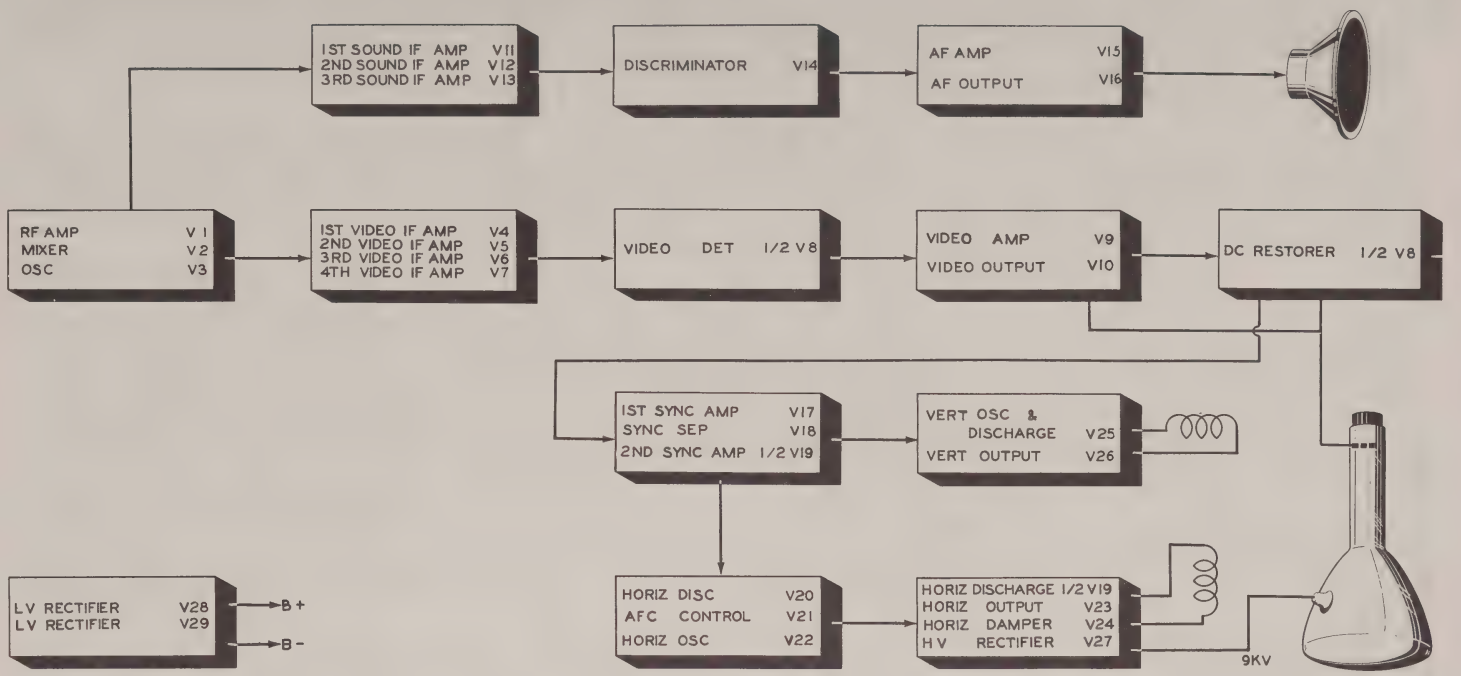
RF TUNER – LEFT SIDE



CHASSIS BOTTOM VIEW–RESISTOR IDENTIFICATION



CHASSIS BOTTOM VIEW–CAPACITOR IDENTIFICATION



BLOCK DIAGRAM

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIR KING PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.		6J6	7BF	
V2	Mixer		6J6	7BF	
V3	Oscillator		6J6	7BF	
V4	1st V. IF Amp.		6AG5	7BD	
V5	2nd V. IF Amp.		6AG5	7BD	
V6	3rd V. IF Amp.		6AG5	7BD	
V7	4th V. IF Amp.		6AG5	7BD	
V8	Video Det., DC Restor.		6AL5	6BT	
V9	Video Amp.		6AU6	7BK	
V10	Video Output		6K6GT	7S	
V11	1st S. IF Amp.		6BA6	7BK	
V12	2nd S. IF Amp.		6BA6	7BK	
V13	3rd S. IF Amp.		6AU6	7BK	
V14	Sound Discr.		6AL5	6BT	
V15	Audio Amp.		6AT6	7BT	
V16	Power Output		6K6GT	7S	
V17	1st sync. amp.		6BK7	8N	
V18	Sync. Sep.		6SH7	8BK	
V19	2nd Sync. Amp., Hor. Dis.		6SN7GT	8BD	
V20	Hor. Sync. Discr.		6AL5	6BT	
V21	Hor. Oscil.		6AU7	8N	
V22	Hor. Osc.		6K6GT	7S	
V23	Hor. Output		6BJ6-G	8BT	
V24	Hor. Damper		5V4G	5L	
V25	Vert. Osc., Discharge		6J5	6S	
V26	Vert. Output		6K6GT	7S	
V27	H.V. Rect.		1B3GT	8C	
V28	H.V. Rect.		5U4G	5T	
V29	L.V. Rect.		5U4G	5T	
V30	Picture Tube		10BP4		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR KING PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450			UPSC72D-2		D14367	▲ Filter
B	40	450						■ "
C	80	150						▲ Bias Filter
C2A	40	450			UP9G897-2		D1464-3	▲ Filter
B	40	450						■ "
C	10	450						▲ Vert.Out.Plate Decoup.
C3A	80	450			UP9B730-3		D14369	▲ Filter
B	50	50			UP9C731-1		D14370	▲ Vert. Out. Cath. Filter
C	10	450						■ Low Pass Filter
C4A	40	450						▲ 2nd Sync. Amp. Plate
B	10	450						■ Audio Out. Screen
C	10	350			UP9B337-1		D14371	▲ Filter
C5A	20	450						■ "
B	80	350						" "
C6A	250	10		PRS 12/250	UP7B808-4		D14338	" "
B	100K	6		1-Res-6/1000				" "
C7	270							Ant. Coupling -Cer.
C8	270							" "
C9	1500							RF Bypass "
C10	10							Fixed Trimmer "
C11	10							" "
C12	1.5	450						RF Neutralizer "
C13	1.5							" "
C14	.68							RF Coupling "
C15	4.7							" "
C16	2.2							" "
C17	1500							RF Decoupling "
C18	270							RF Bypass "
C19	270							RF Decoupling "
C20	1500							" "
C21	270	500						IF Coupling "
C22	68							Fixed Trimmer "
C23	1500							Mixer Decoupling "
C24	4.7							Osc. Feedback "
C25	68							" "
C26	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	Fil. Bypass "
C27	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	" "
C28	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-216	Bias Filter "
C29	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	1st V. IF Decoup. "
C30	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	RF Bypass "
C31	270	500	K-727856-133	1468-0003	5W5T3	MO.5-33		Video IF Coupling "
C32	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	Bias Filter "
C33	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	2nd V. IF Fil. Byp. "
C34	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	2nd V. IF Decoup. "
C35	1500		K-897114-7	1467-.015	1W5D15	MW.5-215	1FM-215	RF Bypass "
C36	270	500	K-727856-133	1468-0003	5W5T3	MO.5-33		Video IF Coup. "
C37	1500		K897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	Bias Filter "
C38	.25	400	P-72086-79	484-.25	DT4P25	ST-4-25	TC-2	" "
C39	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	3rd V. IF Fil. Byp. "
C40	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	3rd V. IF Decoup. "
C41	270	500	K-727856-133	1468-0003	5W5T3	MO.5-33		Video IF Coupling "
C42	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	RF Bypass "
C43	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	4th V. IF Fil. Byp. "
C44	82		K-90581-231					4th V. IF Cath. "
C45	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	4th V. IF Decoup. "
C46	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	RF Bypass "
C47	270	500	K-727856-133	1468-0003	5W5T3	MO.5-33		Video Coupling "
C48	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	Video Det. Fil. Byp. "
C49	10	500	P-727856-102	1468-00001	5W5Q1	MO.5-41		RF Filter "
C50	.05	400	r-72086-136	484-05	DT4S5	ST-4-05	TM-15	Video Coupling "
C51	.05	400	P-72086-136	484-05	DT4S5	ST-4-05	TM-15	" "
C52	.05	400	P-72086-136	484-05	DT4S5	ST-4-05	TM-15	" "
C53	.05	400	P-72086-136	484-05	DT4S5	ST-4-05	TM-15	" "
C54	.25	400	P-72086-79	484-.25	DT4P25	ST-4-25	TC-2	Bias Filter "
C55	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	1st S. IF Cath. Byp. "
C56	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	1st S. IF Decoup. "
C57	.01	400	P-72086-71	484-01	DT4S1	ST-4-01	TM-11	2nd S. IF Grid Filter "
C58	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	2nd S. IF Cath. Byp. "
C59	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	2nd S. IF Screen Byp. "
C60	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	2nd S. IF Plate Decoup. "
C61	51		K-90580-226					3rd S. IF Grid Filter "
C62	6500		K-984006-68					3rd S. IF Decoup.
C63	270	500	K-727856-133	1468-0003	5W5T3	MO.5-33		De-emphasis
C64	.0025	400	P-72086-153					Audio Coupling
C65	.01	400	P-72086-71	484-01	DT4S1	ST-4-01	TM-11	Tone Compensation*
C66	.01	400	P-72086-71	484-01	DT4S1	ST-4-01	TM-11	Audio Coupling
C67	.0025	400	P-72086-153					Audio Plate Byp.†
C68	.005	400	P-72086-127	484-005	DT6D5	ST-6-005	TM-25	Audio Coupling
C69	.005	400	P-72086-127	484-005	DT6D5	ST-6-005	TM-25	Output Plate Bypass
C70	.05	400	P-72086-136	484-05	DT4S5	ST-4-05	TM-15	Sync. Coupling
C71	270	500	K-727856-133	1468-0003	5W5T3	MO.5-33		1st Sync. Amp. Plate
C72	.1	400		484-.1	DT4P1	ST-4-1	TM-1	1st Sync. Amp. Plate Decoup.
C73	270	500	K-727856-133	1468-0003	5W5T3	MO.5-33		Sync. Coupling
C74	.05	400	P-72086-136	484-05	DT4S5	ST-4-05	TM-15	" "
C75	.82	500	P-727856-121					Hor. Sync. Coupling
C76	.004	1000	P-72086-156	1084-004			PX-241	AFC Filter
C77	.01	400	P-727856-136	1468-0005	5W5T5	MO.5-35	1FM-25	Video Output Cath. Byp
C78	.015	400	K-98084-506					Fixed Trimmer
C79	.05	400	P-72086-136	484-05	DT4S5	ST-4-05	TM-15	AFC Filter
C80	.012	400	K-98084-506					Phase Shifter
C81	1200		K-984043-1					" "
C82	.004	400	P-72086-96	484-004	DT6D4	ST-6-004	TM-24	AFC Coupling
C83	.004	400	P-72086-96	484-004	DT6D4	ST-6-004	TM-24	Hor. Sync. Coupling
C84	.05	400	P-72086-136	484-05	DT4S5	ST-4-05	TM-15	H. Osc. Contr. Screen*
C85	.05	400	P-72086-136	484-05	DT4S5	ST-4-05	TM-15	Hor. Osc. Screen
C86	390	500	P-727856-137	1468-0004	5W5T4	MO.5-34	1FM-34	Differentiating Net.
C87	.01	400	P-72086-71	484-01	DT4S1	ST-4-01	TM-11	Hor. Sync. Coupling
C88	.001	400	P-72086-121	434-001	DT6D1	ST-6-001	TM-21	" "
C89	600	500	r-727856-243					Hor. Discharge
C90	.05	400	P-72086-136	484-05	DT4S5	ST-4-05	TM-15	Hor. Output Screen
C91	.1	400		484-.1	DT4P1	ST-4-1	TM-1	Hor. Output Cathode
C92	.01	400	P-72086-71	484-01	DT4S1	ST-4-01	TM-11	Vert. Sync. Coupling
C93	.002	400	P-72086-68	484-002	DT6S2	ST-6-002	TM-22	Integrating Net.
C94	.005	400	P-72086-67	484-005	DT6D5	ST-6-005	TM-25	" "
C95	.005	400	P-72086-67	484-005	DT6D5	ST-6-005	TM-25	" "
C96	.04	600	P-727871-265	1467-005		MO.5-35	1FM-25	Vert. Osc. Grid
C97	.1	400		484-.1	DT4P1	ST-4-1	TM-1	Vert. Coupling
C98	.05	600	K-98084-526	484-05	DT6S5	ST-6-05	TM-15	Vert. Discharge
C99	.005	600	K-98084-526					Damper Filter
C100	.05	600	K-98084-526	634-05	DT6S5	ST-6-05	TM-15	" "
C101	.01	400	P-727895-131	484-01	DT4S1	MPH-6-01	TM-11	Line Filter
C102	.01	400	P-727895-131	484-01	DT4S1	MPH-6-01	TM-11	" "
C103	500		M-940173-1					H. V. Filter T.O.

*May be .003 in some models.
†May be .0015 in some models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR KING PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R1A	1 Meg.	‡	P-970111-7			Volume-Tapped @ 200KΩ
B	1.5MΩ	‡				Contrast Dual Control
C	Switch					On-Off Switch-SPST
R2A	1 Meg.	‡	P970111-8			Vertical Hold Dual Control
B	1.5MΩ	‡				Horizontal Hold
R3A	50KΩ	‡	P970111-5	M-44-S	D11-123	Brightness
B	Shaft			Not Req.	A	Attach to R3A per instructions
R4	20Ω	2	P970111-16	43-20CT	W-20	Horiz. Centering-Center Tap Not Used
R5	20Ω	2	P970111-16	43-20CT	W20X10	Vert. Centering-Tapped @ 10Ω
R6	1500Ω	4	P970111-11			Focus
R7A	500KΩ	‡	P970111-4	AM-19-S	D11-114	Vert. Linearity
B	Shaft			KSS-3	E	Attach to R7A per instructions
R8	2.5 Meg.	‡	P970111-5			Height
R9A	20KΩ	‡	P970111-15	AM-40-S	D11-120	Peaking
B	Shaft			KSS-3	E	Attach to R9A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR KING PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES: ALL RESISTORS ± 10% TOLERANCE UNLESS OTHERWISE STATED	
R10	150Ω	‡	P727834-52		Br.-Grn.-Br.	RF Amp. Grid ±20%
R11	15Ω	‡	P727834-52		Br.-Grn.-Br.	" " " ±20%
R12	100Ω	‡	P727834-13	BTS-1000	Br.-Blk.-Red	Bias Network ±20%
R13	470Ω	‡	K82283-175	BTS-470R	Yl.-Vl.-Red	RF Amp. Plate ±20%
R14	470Ω	‡	K82283-175	BTS-470R	Yl.-Vl.-Red	" " " ±20%
R15	100Ω	‡	P727834-13	BTS-100R	Br.-Blk.-Red	RF Amp. Plate Decoupling ±20%
R16	1 Meg.	‡	P727834-31	BTS-1 Meg.	Br.-Blk.-Grn.	Mixer Grid ±20%
R17	470Ω	‡	K82283-175	BTS-470R	Yl.-Vl.-Red	Osc. Plate ±20%
R18	15Ω	‡	P727834-52		Br.-Grn.-Br.	Decoupling ±20%
R19	100Ω	‡	P727834-13	BTS-1000	Br.-Blk.-Red	Conv. Plate Decoupling-Note 1 ±20%
R20	47Ω	‡			Yl.-Vl.-Blk.	Osc. Cathode ±20%
R21	100Ω	‡	P727834-25	BTS-100R	Br.-Blk.-Yl.	Osc. Grid ±20%
R22	100Ω	‡	P727834-25	BTS-100R	Br.-Blk.-Yl.	Osc. Grid ±20%
R23	10KΩ	‡	K82283-183	BTS-10K ±5%	Br.-Blk.-Or.	1st Video IF Grid ±5%
R24	3Ω	‡	P727834-45		Or.-Wh.-Blk.	1st Video IF Cathode ±20%
R25	100Ω	‡	P727834-13	BTS-1000	Br.-Blk.-Red	IF Contrast Bias Network ±20%
R26	15Ω	‡	P727834-52		Br.-Grn.-Br.	Decoupling "
R27	100Ω	‡	P727834-13	BTS-1000	Br.-Blk.-Red	" ±20%
R28	15Ω	‡	P727834-52		Br.-Grn.-Br.	" "
R29	680KΩ	‡	K82283-227	BTS-680K ±5%	Blue-Gray-Yl.	Voltage Dropping ±5%
R30	10KΩ	‡	K82283-183	BTS-10K ±5%	Br.-Blk.-Or.	2nd Video IF Grid ±5%
R31	100Ω	‡	P727834-13	BTS-1000	Br.-Blk.-Red	IF Contrast Bias Network ±20%
R32	39Ω	‡	P727834-45		Or.-Wh.-Blk.	2nd Video IF Cathode "
R33	100Ω	‡	P727834-13	BTS-1000	Br.-Blk.-Red	Decoupling ±20%
R34	15Ω	‡	P727834-52		Br.-Grn.-Br.	" "
R35	470Ω	‡	K82283-175	BTS-470 ±5%	Yl.-Vl.-Red	3rd Video IF Grid ±5%
R36	39Ω	‡	P727834-45		Or.-Wh.-Blk.	3rd Video IF Cathode ±20%
R37	270Ω	‡	K82283-169	BTS-270 ±5%	Red-Vl.-Red	3rd Video IF Plate ±5%
R38	100Ω	‡	P727834-13	BTS-1000	Br.-Blk.-Red	Decoupling ±20%
R39	15Ω	‡	P727834-52		Br.-Grn.-Br.	" "
R40	8200Ω	‡	P727834-73	BTS-8200	Gray-Red-Red	Contrast Bias Network
R41	18Ω	‡	P727834-77	BTS-18R	Br.-Gray-Or.	" " "
R42	680Ω	‡	P727834-60	BTS-680	Blue-Gray-Br.	" " "
R43	10KΩ	‡	P727834-74	BTS-10K	Br.-Blk.-Or.	" " "
R44	270Ω	‡	P727834-67	BTS-270Ω	Red-Vl.-Red	" " "
R45	15Ω	‡	P727834-52		Br.-Grn.-Br.	4th Video IF Cathode
R46	560Ω	‡	K82283-177	BTS-560 ±5%	Grn.-Blue-Red	4th Video IF Plate ±5%
R47	100Ω	‡	P727834-13	BTS-1000	Br.-Blk.-Red	Decoupling ±20%
R48	390Ω	‡	K82283-173	BTS-390 ±5%	Or.-Wh.-Red	Diode Load ±5%
R49	470KΩ	‡	P727834-29	BTS-470K	Yl.-Vl.-Yl.	1st Video amp. Grid ±20%

RESISTORS (CONT.)

ITEM No.	RATING		REPLACEMENT DATA: AIR KING PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	REPLACEMENT DATA: MERIT PART No.	
R50	330Ω	‡	P727834-68	BTS-330Ω	Or.-Or.-Red	1st Video Amp. Plate	
R51	680Ω	‡	P727834-72	BTS-680Ω	Blue-Gray-Red	" " "	
R52	820KΩ	‡5%	P727834-229	BTS-820K ±5%	Gray-Red-Yl.	2nd Video Amp. Grid	±5%
R53	1.2 Meg.	‡	P727834-233	BTS-1.2 Meg.			
		±5%			Br.-Red-Grn.	Bias Network	±5%
R54	330Ω	‡	P727834-56		Or.-Or.-Br.	2nd Video Amp. Cathode	
R55	330Ω	‡	P727834-68	BTA-3300	Or.-Or.-Red	Voltage Dropping	
R56	10KΩ	‡	P727834-74	BTS-10K	Br.-Blk.-Or.	Sync. Isolation	
R57	100KΩ	‡	P727834-25	BTS-100K	Br.-Blk.-Yl.	Picture Tube Grid	±20%
R58	1 Meg.	‡	P727834-31	BTS-1 Meg.	Br.-Blk.-Grn.	Diode Load	±20%
R59	47KΩ	‡	P727834-82	BTS-47K	Yl.-Vl.-Or.	Bias Network	
R60	150KΩ	‡	P727834-88	BTS-150K	Br.-Grn.-Yl.	" "	
R61	100Ω	‡	P727834-7		Br.-Blk.-Br.	1st Sound IF Cathode	±20%
R62	1000Ω	‡	P727834-13	BTS-1000	Br.-Blk.-Red	1st Sound IF Decoupling	±20%
R63	470KΩ	‡	P727834-29	BTS-470K	Yl.-Vl.-Yl.	2nd Sound IF Grid	±20%
R64	100Ω	‡	P727834-7		Br.-Blk.-Br.	2nd Sound IF Cathode	±20%
R65	330Ω	‡	P727834-16	BTS-330Ω	Or.-Or.-Red	2nd Sound IF Screen	±20%
R66	1000Ω	‡	P727834-13	BTS-1000	Br.-Blk.-Red	2nd Sound IF Plate	±20%
R67	22KΩ	‡	P727834-78	BTS-22K	Red-Red-Or.	3rd Sound IF Grid	
R68	10KΩ	‡	P727834-74	BTS-10K	Br.-Blk.-Or.	Voltage Dropping	
R69	10KΩ	‡	P727834-74	BTS-10K	Br.-Blk.-Or.	Bleeder	
R70	100KΩ	‡	P727834-86	BTS-100K	Br.-Blk.-Yl.	Diode Load	
R71	100KΩ	‡	P727834-86	BTS-100K	Br.-Blk.-Yl.	" "	
R72	22KΩ	‡	P727834-21	BTS-22K	Red-Red-Or.	De-emphasis	±20%
R73	2.2Ω	1	K867971-322	BW-‡-2.2		Filament Dropping	
R74	10 Meg.	‡	P727834-37	BTS-10 Meg.	Br.-Blk.-Blue	1st Audio Grid	±20%
R75	330KΩ	‡	P727834-28	BTS-330K	Or.-Or.-Yl.	1st Audio Plate	±20%
R76	270KΩ	‡	P727834-91	BTS-270K	Red-Vl.-Yl.	Audio Output Grid	
R77	2200Ω	2	K9612B-15	BT-2-2200	Red-Red-Red	Filter	±20%
R78	2200Ω	2	K9612B-15	BT-2-2200	Red-Red-Red	"	±20%
R79	6.8 Meg.	‡	P727834-108	BTS-6.8 Meg.	Blue-Gray-Grn.	Bias Network	
R80	1 Meg.	‡	P727834-31	BTS-1 Meg.	Br.-Blk.-Grn.	1st Sync. Amp. Grid	±20%
R81	470Ω	1	P727834-70	BTA-470	Yl.-Vl.-Br.	1st Sync. Amp. Plate	
R82	470Ω	1	P727834-70	BTA-4700	Yl.-Vl.-Red	" "	
R83	1 Meg.	‡	P727834-98	BTS-1 Meg.	Br.-Blk.-Grn.	Sync. Sep. Grid	
R84	4.7 Meg.	‡	P727834-106	BTS-4.7 Meg.	Yl.-Vl.-Grn.	Bias Network	
R85	6800Ω	‡	P727834-72	BTS-6800	Blue-Gray-Red	1st Sync. Amp. Plate	
R86	1 Meg.	‡	P727834-31	BTS-1 Meg.	Br.-Blk.-Grn.	2nd Sync. Amp. Grid	±20%
R87	470KΩ	‡	P727834-70	BTS-470K	Yl.-Vl.-Red	2nd Sync. Amp. Plate	
R88	100KΩ	‡	P727834-86	BTS-100K	Br.-Blk.-Red	Decoupling	
R89	22KΩ	‡	P727834-21	BTS-22K	Red-Red-Or.	Differentiator	±20%
R90	22KΩ	‡	P727834-21	BTS-22K	Red-Red-Or.	Integrator	±20%
R91	8200Ω	‡	P727834-73	BTS-8200	Gray-Red-Red	"	
R92	8200Ω	‡	P727834-73	BTS-8200	Gray-Red-Red	"	
R93	1.5 Meg.	‡	K82283-235	BTS-1.5 Meg.			
		±5%			Br.-Grn.-Grn.	Vert. Osc. Grid	±5%
R94	220KΩ	‡	P727834-90	BTS-220K	Red-Red-Yl.	Vert. Osc. Plate	
R95	100KΩ	‡	P727834-86	BTS-100K	Br.-Blk.-Yl.	Voltage Divider	
R96	2.2 Meg.	‡	P727834-102	BTS-2.2 Meg.	Red-Red-Grn.	" "	
R97	2.2 Meg.	‡	P727834-102	BTS-2.2 Meg.	Red-Red-Grn.	Vert. Output Grid	
R98	56KΩ	‡	P727834-83	BTS-56K	Grn.-Blue-Or.	Vert. Osc. Plate	
R99	8200Ω	±5%	K82283-181	BTS-8200 ±5%	Gray-Red-Red	Peaking	±5%
R100	1000Ω	‡		BTS-1000	Br.-Gray-Red	Vert. Output Cathode-See Note 2	
R101	10KΩ	1	P727834-19	BTA-10K	Br.-Blk.-Or.	Vert. Output Plate	±20%
R102	470KΩ	1	P727834-84	BTS-470K	Yl.-Vl.-Yl.	Diode Load	
R103	470KΩ	‡	P727834-94	BTS-470K	Yl.-Vl.-Yl.	" "	
R104	1 Meg.	‡	P727834-98	BTS-1 Meg.	Br.-Blk.-Grn.	" "	
R105	470KΩ	‡	P727834-29	BTS-470K	Yl.-Vl.-Yl.	AFC Grid	±20%
R106	560Ω	‡	P727834-59	BTS-560	Grn.-Blue-Br.	AFC Grid Current Limiting	±5%
R107	10Ω	‡	P727834-111		Br.-Blk.-Blk.	AFC Cathode	
R108	47KΩ	1	P727830-79	BTA-47K	Red-Vl.-Or.	Bleeder	
R109	18KΩ	1	P727830-81	BTA-18K	Or.-Wh.-Or.	AFC Screen Dropping	
R110	47KΩ	1	K90496-199	BTA-47K ±5%	Yl.-Vl.-Or.	AFC Plate	±5%
R111	39KΩ	±5%	K90496-197	BTA-39K ±5%	Or.-Wh.-Or.	AFC Plate	±5%
R112	27KΩ	‡	P727834-79	BTS-27K	Red-Vl.-Or.	Horiz. Osc. Grid	
R113	10KΩ	1	P727836-74	BTA-10K	Br.-Blk.-Or.	Horiz. Osc. Screen	
R114	470Ω	5	K985355-3	AB-5000	Yl.-Vl.-Br.	Horiz. Osc. Plate	
R115	6800Ω	‡	P727834-72	BTS-6800	Blue-Gray-Red	Differentiator	
R116	220KΩ	‡	P727834-27	BTS-220K	Red-Red-Yl.	Horiz. Discharge Grid	±20%
R117	680KΩ	±5%	K82283-227	BTS-680K ±5%	Blue-Gray-Yl.	Horiz. Discharge Plate	±5%
R118	6800Ω	‡	P727834-72	BTS-6800	Blue-Gray-Yl.	Peaking	
R119	470KΩ	‡	P727834-94	BTS-470K	Yl.-Vl.-Yl.	Horiz. Output Grid	
R120	100Ω	1	P727836-50		Br.-Blk.-Br.	Horiz. Output Cathode	
R121	22KΩ	1	P727836-78	BTA-22K	Red-Red-Or.	Horiz. Output Screen	
R122	18KΩ	1	P727836-77	BTA-18K	Br.-Gray-Or.	" "	
R123	68000Ω	20				Damping-See Note 3	
R124	1 Meg.	1	K90496-98	BTA-1 Meg.	Br.-Blk.-Grn.	Hi. Volt. Filter	
R125	1800Ω	1	K867971-365	BTA-1800	Br.-Gray-Red	Focus Coil Shunt	
R126	270Ω	2	K867972-355	BW-2-270	Red-Vl.-Br.	" "	
R127A	13650Ω	17				Bleeder Network	
B	2302	10				" "	
C	2302	3.2				" "	
R128A	67500Ω					" "	
B	122	‡				" "	
C	932	‡				" "	
R130	3.3Ω	‡	M-433001-220	BW-‡-3.3 ±5%	Or.-Or.-Gold	Hi Volt. Rect. Filament	±5%
R131	10KΩ	‡		BTS-10K	Br.-Blk.-Or.	Mixer Grid Coil Shunt	
R132	150KΩ	‡	P727834-26	BTS-150K	Br.-Grn.-Yl.	AGC. Anode Dropping *	
R133	27KΩ	‡	P727834-29	BTS-27K	Red-Vl.-Or.	Tone Compensation	

*Not used in all models.
Note 1-Some models use 1500Ω in this application.
Note 2-Some models use 2700Ω in this application.
Note 3-This resistor is tapped at 500Ω and 1000Ω.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: AIR KING PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	REPLACEMENT DATA: MERIT PART No.
T1	2.5 Amp. @ 117 V.	300MA. @ 670V.	5.1 Amp. @ 12V.	6 Amp. @ 5V. BSC. 4 @ Amp. @ 5V	20176	P-8152		

CAPACITORS (CONT.)

ITEM No.	RATING		REPLACEMENT DATA: AIR KING PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C59	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	2nd S. IF Screen Byp.*
C60	1500		K-897114-7	1467-0015	1W5D15	MW.5-215	1FM-215	2nd S. IF Plate Decoup.*
C61	51		K-90580-226					3rd S. IF Grid Filter*
C62	6500		K-984006-68					3rd S. IF Decoup.
C63	270	500	K-727856-133	1468-0003	5W5T3	MO.5-33		De-emphasis
C64	.0025	400	P-72086-153					Audio Coupling
C65	.01	400	P-72086-71	484-01	DT4S1	ST-4-01	TM-11	Tone Compensation*
C66	.01	400	P-72086-71	484-01	DT4S1	ST-4-01	TM-11	Audio Coupling
C67	.0025	400	P-72086-153					Audio Plate Byp.†
C68	.005	400	P-72086-127	484-005	DT6D5	ST-6-005	TM-25	Audio Coupling
C69	.005	400	P-72086-127	484-005	DT6D5	ST-6-005	TM-25	Output Plate Bypass
C70	.05	400	P-72086-136	484-05	DT4S5	ST-4-05	TM-15	Sync. Coupling
C71	270	500	K-727856-133	1468-0003	5W5T3	MO.5-33		1st Sync. Amp. Plate
C72	.1	400		484-.1	DT4P1	ST-4-1	TM-1	1st Sync. Amp. Plate Decoup.
C73	270	500	K-727856-133	1468-0003	5W5T3	MO.5-33		Sync. Coupling
C74	.05	400	P-72086-136	484-05	DT4S5	ST-4-05	TM-15	" "
C75	.82	500	P-727856-121					Hor. Sync. Coupling
C

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA AIR KING PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDARSON PART No.	REPLACEMENT DATA MERIT PART No.	NOTES
T2	165Ω	1310Ω	208T2	A-8121	TV-24A88	A-4000	Vert. Block.Osc. Trans.
T3	600Ω	6.5Ω	204T2	A-8115	TV-24886	A-3035	Vert. Output Trans.
T4	37Ω	35Ω tapped @ 9.5Ω	208T8				Hor. Sync. Disc. Trans.
T5	420Ω tapped @ 180Ω	10.6Ω tapped @ .6Ω SEC. 2 0Ω	211T1				Hor. Output Trans.
T6	247Ω		202L2	FC-10			Focus Coil
T8A	68Ω		71420	DY-1			Vert. Deflection Yoke
B	14Ω		201D1				Hor. Deflection Yoke

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA AIR KING PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDAR'N PART No.	REPLACEMENT DATA MERIT PART No.	INSTALLATION NOTES
T9	7300Ω	3.2Ω	480Ω	.7Ω		A-3878	T22847	A-2931	

SPEAKER

ITEM No.	RATINGS FIELD	RATINGS V C IMP	REPLACEMENT DATA AIR KING PART No.	REPLACEMENT DATA JENSEN PART No.	REPLACEMENT DATA QUAM PART No.	INSTALLATION NOTES
SP1A	62Ω	3.2Ω				Model A1000. Early Production
B	PM	3.2Ω				Model A1000. Late Production
C	PM	3.2Ω				Model A1001.
	CONE DIA	V C DIA				
SP2A	5"					
B	6"					
C	12"					

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 c/s)	REPLACEMENT DATA AIR KING PART No.	REPLACEMENT DATA STANCOR PART #lo.	REPLACEMENT DATA THORDARSON PART No.	REPLACEMENT DATA MERIT PART No.	INSTALLATION NOTES
L1	300MA	50Ω	3 Henries		C-2326*			*Redrill new mtg. hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA AIR KING PART No.	REPLACEMENT DATA MEISSNER PART No.	NOTES
L2	Ant. Trans.	0Ω				Part of tuner assy. Part #KRK2
L3	Interference Trap	0Ω				" " " " " "
L4	"	0Ω				" " " " " "
L5	Fil. Choke	0Ω				" " " " " "
L6	Mixer Grid Coil	.1Ω				" " " " " "
L7	1st Video IF & Sound Trap	.2Ω				" " " " " "
L8	Fil. Choke	0Ω		204L1		
L9	2nd Video IF	.2Ω	0Ω	202K2		
L10	Fil. Choke	0Ω		204L1		
L11	3rd Video IF	.2Ω	0Ω	202K3		
L12	Fil. Choke	0Ω		204L1		
L13	4th Video IF	.2Ω		202L1		
L14	Sound Trap	.1Ω		202K4		
L15	Fil. Choke	0Ω		204L1		
L16	5th Video IF	.1Ω		202L1		
L17	Fil. Choke	0Ω		204L1		
L18	Peaking Coil	6Ω				Wound on 39KΩ resistor, 180 Microhenry.
L19	" "	8Ω				250 Microhenry
L20	" "	5Ω				Wound on 22KΩ resistor, 120 Microhenry.
L21	" "	4Ω				93 Microhenry
L22	" "	5Ω				Wound on 22KΩ resistor, 120 Microhenry.
L23	" "	4Ω				93 Microhenry
L24	1st Sound IF	.1Ω	0Ω	201K1		
L25	2nd " "	.1Ω	0Ω	201K1		
L26	Sound Disc. Trans.	0Ω	0Ω	203K1		
L27	Hor. Width Control	.6Ω		201R1		
L28	Hor. Linearity Cont.	37Ω		201R3		

MISCELLANEOUS

ITEM No.	PART NAME	AIR KING PART No.	NOTES
M2	Fuse		AGC 1/4 Amp.
M3	Tuner Assy	KRK2	Complete unit
M4	Power Cord		
M5	Receptacle		Power Interlock Plug
M6	Terminal Board		(3 Terminals with Link)
M7	Terminal Board		Antenna (2 Terminals)
	Ion Trap	203D2	PM Type
	Safety Glass	62209	

HORIZONTAL OSCILLATOR ALIGNMENT

HORIZONTAL OSCILLATOR ALIGNMENT CHECK:

While receiving a television signal turn the horizontal hold control fully counter-clockwise. Remove the picture momentarily by turning the contrast control fully counter-clockwise and then return it to its normal operating position. The picture should pull back into synchronization.

Now turn the horizontal hold control fully clockwise. Remove the picture momentarily by turning the contrast control fully counter-clockwise and then return to its normal operating position. The picture should pull back into synchronization.

If receiver synchronizes properly under these checks it is not necessary to align the horizontal oscillator. However, if the picture is not normal or stable, the horizontal oscillator must be aligned.

SLIGHT RETOUCH ALIGNMENT

If the receiver failed in the above check at either extreme of the hold control, it may be possible to align the horizontal oscillator by making slight adjustments.

Tune in a TV station and adjust fine tuning for best sound quality. Adjust vertical hold control to vertically synchronize the picture. Adjust the contrast control to slightly less than normal. Turn the horizontal hold control to the extreme position in which the oscillator falls out of synchronization. Momentarily remove the signal. Adjust B_2 (rear of chassis) until the oscillator pulls into synchronization. Check hold and pull-in as outlined above.

COMPLETE ALIGNMENT

Tune in a TV station for the best sound quality. Adjust vertical hold control to vertically synchronize the picture. Adjust the contrast control to slightly less than normal.

Adjust B_1 until the blanking bar, which may appear in the picture, moves to the right and off the raster. If ripples occur in the raster turn B_1 in a clockwise direction until the unstable condition is removed. The length of this adjustment screw in its correct position is usually about 1/2 inch beyond the bushing.

Turn horizontal hold control fully counter-clockwise and adjust B_2 clockwise until picture fails to synchronize. Now slowly turn B_2 counter-clockwise to the point where the picture synchronizes. Readjust B_1 so that the left side of the picture is close to the left side of the raster but does not fold over.

Turn the horizontal hold control fully clockwise. The right side of the picture should be close to the right side of the raster, but should not fold over. If it does, readjust B_1.

Momentarily remove the signal. When signal is restored, the picture should fall into synchronization. If it does not, turn B_2 counter-clockwise until picture falls into synchronization.

Turn horizontal hold control fully counter-clockwise. Picture should fall back into synchronization after momentary removal of the signal.

If picture fails to synchronize after momentary removal of the signal at both extremes of the horizontal hold control, there may be insufficient pull-in range. However, if picture will pull in through 3/4 of the hold control range, operation should be satisfactory as excessive pull-in is objectionable. Excessive pull-in makes the control circuits more sensitive which may result in their being triggered by noise pulses. Also the vertical synchronizing and equalizing pulses may cause a bend in the upper part of the picture.

LINEARITY ADJUSTMENTS

HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS.

Adjust the HEIGHT control until picture fills mask vertically (6 3/8 inches). Adjust VERTICAL LINEARITY for best linearity top to bottom. Readjust the HEIGHT control for proper height. The two controls are interacting and adjustment of one will require readjustment of the other. Adjust vertical centerring to center picture vertically.

WIDTH AND HORIZONTAL LINEARITY ADJUSTMENTS.

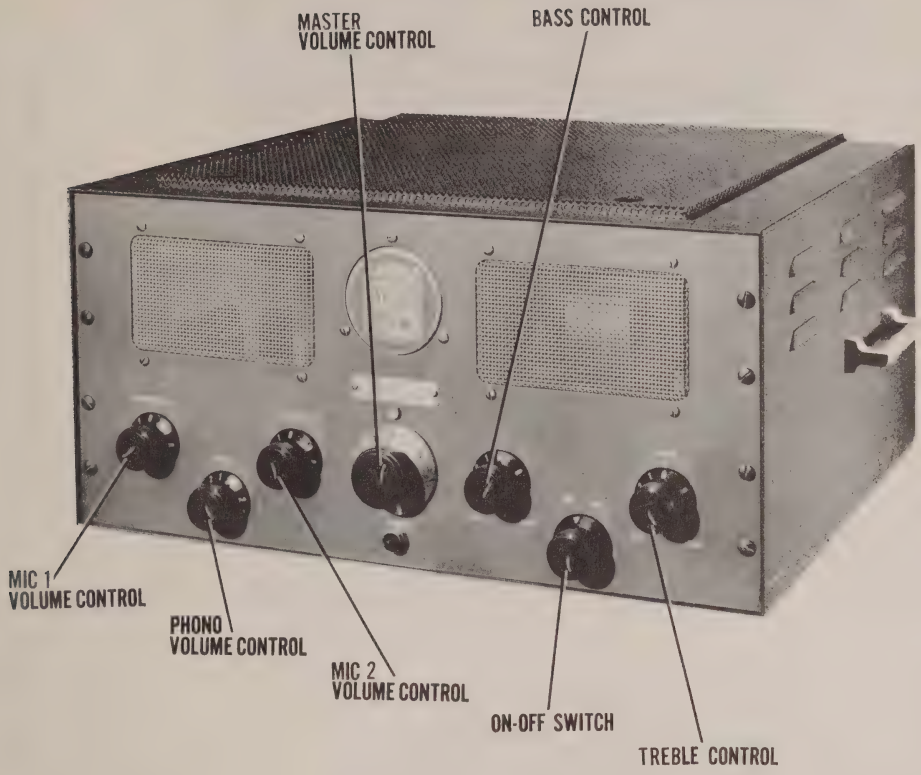
Turn the horizontal peaking control clockwise as far as possible without crowding the right side of picture. This provides maximum voltage to picture tube second anode. Adjust width control until raster fills the mask horizontally (8 1/2 inches). Adjust the horizontal linearity control until picture is symmetrical left to right. (It may be necessary to slightly readjust the horizontal peaking control). Adjust the horizontal centering control to center picture horizontally.

If continued adjustments of the peaking, width and linearity controls fail to give proper linearity, it may be necessary to move the tap on R123 which is located in the high voltage compartment. After this tap is moved, it will be necessary to readjust the peaking, width and linearity controls.

DISASSEMBLY INSTRUCTIONS

1. Remove eight push-on type control knobs.
2. Remove nine screws holding back cover. Remove back cover.
3. Remove speaker plug from speaker.
4. Remove five 7/16" hex head bolts holding chassis.
5. Remove two wood screws from rear of picture tube top cover. Remove cover.
6. Remove two wood screws holding picture tube front cover. Remove cover.
7. Loosen two screws holding each clamp at top of picture tube. Pull picture tube out front of cabinet.
8. Remove chassis by pulling out back of cabinet.
9. Remove four 1/4" hex nuts holding speaker. Remove speaker.

CAUTION: REMOVE PICTURE TUBE BEFORE REMOVING CHASSIS.



AIRLINE
MODEL 74HA-8200A

TRADE NAME	Airline, Model 74HA-8200A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Avenue, Chicago, Illinois
TYPE SET	AC Operated 3 Channel Audio Amplifier
TUBES (SEVEN)	Types 12SJ7 Mic. 1 Pre-Amp., 12SJ7 Mic. 2 Pre-Amp., 6SJ7 1st AF Amp., 6SL7GT 2nd AF-Phase Inverter, (2) 6L6G Power Output, 5U4G Rectifier
POWER SUPPLY	110-120 Volts AC RATING 1.18 Amp. @ 117 Volts AC

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"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 3/49-#496-4 SET#58 FOLDER #4

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mic#1 Pre-Amp.	12SJ7	12SJ7	8N	
2	Mic#2 Pre-Amp.	12SJ7	12SJ7	8N	
3	1st AF Amp.	6SJ7	6SJ7	8N	
4	2nd AF•Phase Inv	6SL7GT	6SL7GT	8BD	
5	Power Output	6L6G	6L6G	7AC	
6	Power Output	6L6G	6L6G	7AC	
7	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8A	8	600	45B111	672-2X8	KR-608		D8193	Filter
B	8	600			KR-608			Filter
9A	8	475	45A092	AEP22J	QC1145	DO-2x10-450	D13403	Filter
B	8	475						Filter
10	100	50	45A115	PRS50/100	BRH501	M-100-50	UHC105	Bias Filter
11A	8	475	45B106	PRS450/8-8	EDL8845	DH-2x8-450	UT-88	Decoupling Red
B	8	475						Decoupling Red
12	25	50	45A096	PRS50/25	BR255	M-25-50	TA525	Cathode Bypass
13	25	50	45A096	PRS50/25	BR255	M-25-50	TA525	Cathode Bypass
14	25	50	45A096	PRS50/25	BR255	M-25-50	TA525	Cathode Bypass
15	.01	600	49AG103J	684-01	GT6S1	MPH-6-01	TC-11	Line Filter
16	.001	1600		1684-001	GT16D1	STM-16-001	TC-21	Output Plate Bypass
17	.001	1600		1684-001	GT16D1	STM-16-001	TC-21	Output Plate Bypass
18	.1	600	46AX104H	684-.1	GT6P1	ST-6-1	TC-1	Audio Coupling
19	.1	600	46AX104H	684-.1	GT6P1	ST-6-1	TC-1	Audio Coupling
20	.003	600		684-003	GT6S3	ST-6-003	TC-23	Tone Comp.
21	.001	600	46AZ102L	684-001	GT6D1	ST-6-001	TC-21	Tone Comp.
22	.05	600	46AX503F	684-05	GT6S5	ST-6-05	TC-15	Audio Coupling
23	.1	600	46AX104H	684-1	GT6P1	ST-6-1	TC-1	1st AF Screen Bypass
24	.1	600	46AX104H	684-1	GT6P1	ST-6-1	TC-1	Mic. 1 Screen Bypass
25	.1	600	46AX104H	684-1	GT6P1	ST-6-1	TC-1	Mic. 2 Screen Bypass
26	.05	600	46AX503F	684-05	GT6S5	ST-6-05	TC-15	Audio Coupling
27	.05	600	46AX503F	684-05	GT6S5	ST-6-05	TC-15	Audio Coupling
28	.05	600	46AX503F	684-05	GT6S5	ST-6-05	TC-15	Audio Coupling
29	.1	200	49AV104J	484-1	GT2P1	ST-2-1	TC-1	Bias Filter
30	.1	200	49AV104J	484-1	GT2P1	ST-2-1	TC-1	Bias Filter
31	270	500	CM20A271K	1468-00025	5W5T25	MO.5-325	1FM-325	Tone Comp.
32	270	500	CM20A271K	1468-00025	5W5T25	MO.5-325	1FM-325	Tone Comp.
33	270	500	CM20A271K	1468-00025	5W5T25	MO.5-325	1FM-325	Tone Comp.

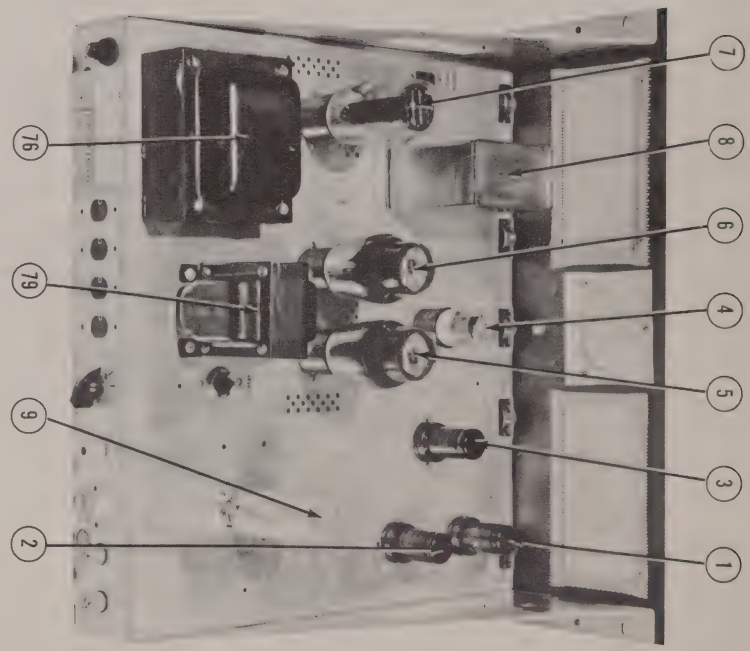
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
34A	2 Meg.	½	25B573	D13-139	M-66-Z	Mike 1 Control
B	Shaft		Not Req.	A	Not Req.	Attach to 34A Per Instructions
35A	2 Meg.	½	25B573	D13-139	M-66-Z	Mike 2 Control
B	Shaft		Not Req.	A	Not Req.	Attach to 35A Per Instructions
36A	2 Meg.	½	25B573	D13-139	M-66-Z	Master Gain Control
B	Shaft		Not Req.	A	Not Req.	Attach to 36A Per Instructions
37A	1 Meg.	½	25B592	DVC-539X		Phono Control
B	Shaft		Not Req.	A		Attach to 37A Per Instructions
38A	500KΩ	½	25B578	D13-133	M-60-Z	Bass Control
B	Shaft		Not Req.	A	Not Req.	Attach to 38A Per Instructions
39A	1 Meg.	½	25B575	D11-137	M-61-S	Treble Control
B	Shaft		Not Req.	A	Not Req.	Attach to 39A Per Instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
40	220KΩ	½	RC20AE224M	BTS-220K	Red-Red-Yl. Isolation.
41	470KΩ	½	RC20AE474M	BTS-470K	Yl.-Vi.-Yl. AF Voltage Network
42	1 Meg.	½	RC20AE105M	BTS-1 Meg.	Br.-Blk.-Grn. 1st MIC Amp. Grid
43	1 Meg.	½	RC20AE105M	BTS-1 Meg.	Br.-Blk.-Grn. 2nd MIC Amp. Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	
44	1000Ω	‡	RC20AE102K	BTS-1000	Br.-Blk.-Red 1st MIC Amp. Cathode
45	1000Ω	‡	RC20AE102K	BTS-1000	Br.-Blk.-Red 2nd MIC Amp. Cathode
46	1 Meg.	‡	RC20AE105K	BTS-1 Meg.	Br.-Blk.-Grn. 1st MIC Amp. Screen
47	1 Meg.	‡	RC20AE105K	BTS-1 Meg.	Br.-Blk.-Grn. 2nd MIC Amp. Screen
48	220KΩ	‡	RC20AE224M	BTS-220K	Red-Red-Yl. 1st MIC Amp. Plate Load
49	220KΩ	‡	RC20AE224M	BTS-220K	Red-Red-Yl. 2nd MIC Amp. Plate Load
50	100KΩ	‡	RC20AE104K	BTS-100K	Br.-Blk.-Yl. Isolation
51	100KΩ	‡	RC20AE104K	BTS-100K	Br.-Blk.-Yl. Isolation
52	1.5 Meg.	‡	RC20AE155K	BTS-1.5 Meg.	Br.-Grn.-Grn. Bias Net.
53	1.5 Meg.	‡	RC20AE155K	BTS-1.5 Meg.	Br.-Grn.-Grn. Bias Net.
54	680Ω	‡	RC20AE681K	BTS-680	Blue-Gray-Br. Bias Net.
55	10KΩ	‡	RC20AE103K	BTS-10K	Br.-Blk.-Yl. Bias Net.
56	1 Meg.	‡	RC20AE105K	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Screen
57	100KΩ	‡	RC20AE104K	BTS-100K	Br.-Blk.-Yl. 1st AF Plate Load
58	47KΩ	‡	RC20AE473K	BTS-47K	Yl.-Vi.-Or. Decoupling
59	27KΩ	‡	RC20AE273K	BTS-27K	Red-Vi.-Or. Decoupling
60	100KΩ	‡	RC20AE104K	BTS-100K	Br.-Blk.-Yl. Tone Comp.
61	150KΩ	‡	RC20AE154K	BTS-150K	Br.-Grn.-Yl. Tone Comp.
62	220KΩ	‡	RC20AE224K	BTS-220K	Red-Red-Yl. Tone Comp.
63	150KΩ	‡	RC20AE154K	BTS-150K	Br.-Grn.-Yl. Tone Comp.
64	1200Ω	1	RC30AE122K	BTA-1200	Br.-Red-Red 2nd AF Cathode
65	100KΩ	1	RC30AE104K	BTA-100K	Br.-Blk.-Yl. 2nd AF Plate Load
66	11KΩ	‡	RC20AE113J	BTS-10K	Br.-Br.-Or. Phase Inver. Grid
67	100KΩ	1	RC30AE104K	BTA-100K	Br.-Blk.-Yl. Phase Inver. Plate Load
68	1200Ω	1	RC30AE122K	BTA-1200	Br.-Red-Red Phase Inver. Cathode
69	220KΩ	‡	RC20AE224J	BTS-220K	Red-Red-Yl. Output Grid
70	220KΩ	‡	RC20AE224K	BTS-220K	Red-Red-Yl. Output Grid
71	47Ω	1	RC30AE470M	BW-1-47	Yl.-Vi.-Blk. Parasitic Supp.
72	47Ω	1	RC30AE470M	BW-1-47	Yl.-Vi.-Blk. Parasitic Supp.
73	15KΩ	20	24BH153E	DG-15K	Bleeder
74	2500Ω	10	24BC252E	AB-2500	Voltage Dropping
75	750Ω	10	24BC751D	AB-750	Filament Shunt

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	AIRLINE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
76	117VAC @ 1.18A	750VCT .16ADC	5.0VAC @ 3.0A	6.6VCT @ 2.6A	52C135	P-6314	T22R07	P-2955

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (0 CURRENT 1000)	AIRLINE PART NO.	STANCOR PART NO.	THORDARSON PART NO.	MERIT PART No.	
77	.10A	53Ω	2.5HY	56B089	C-2304#		C-2974#	# Drill one new.
78	.03A	455Ω	8.5HY	56B079	C-1706#	T20C52#	C-2981#	mounting hole.

TRANSFORMER (OUTPUT)

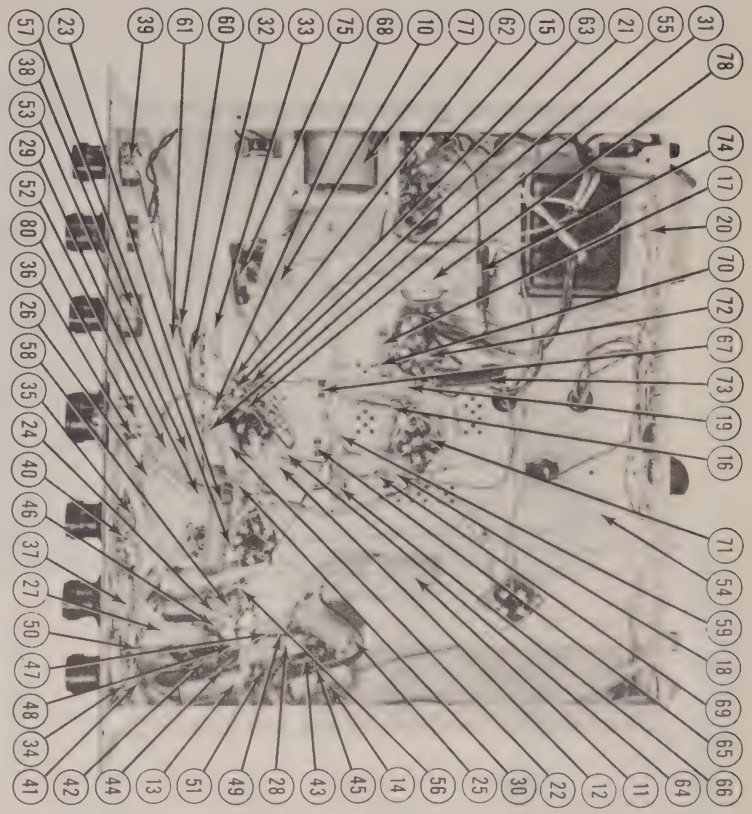
ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
79	5000Ω CT	500Ω 8Ω 4Ω 2.7Ω 2Ω	255Ω CT	.22Ω .6Ω .4Ω .3Ω .25Ω	55C091	A-3800†	T22S70†	A-3129†	† Drill new mounting holes.

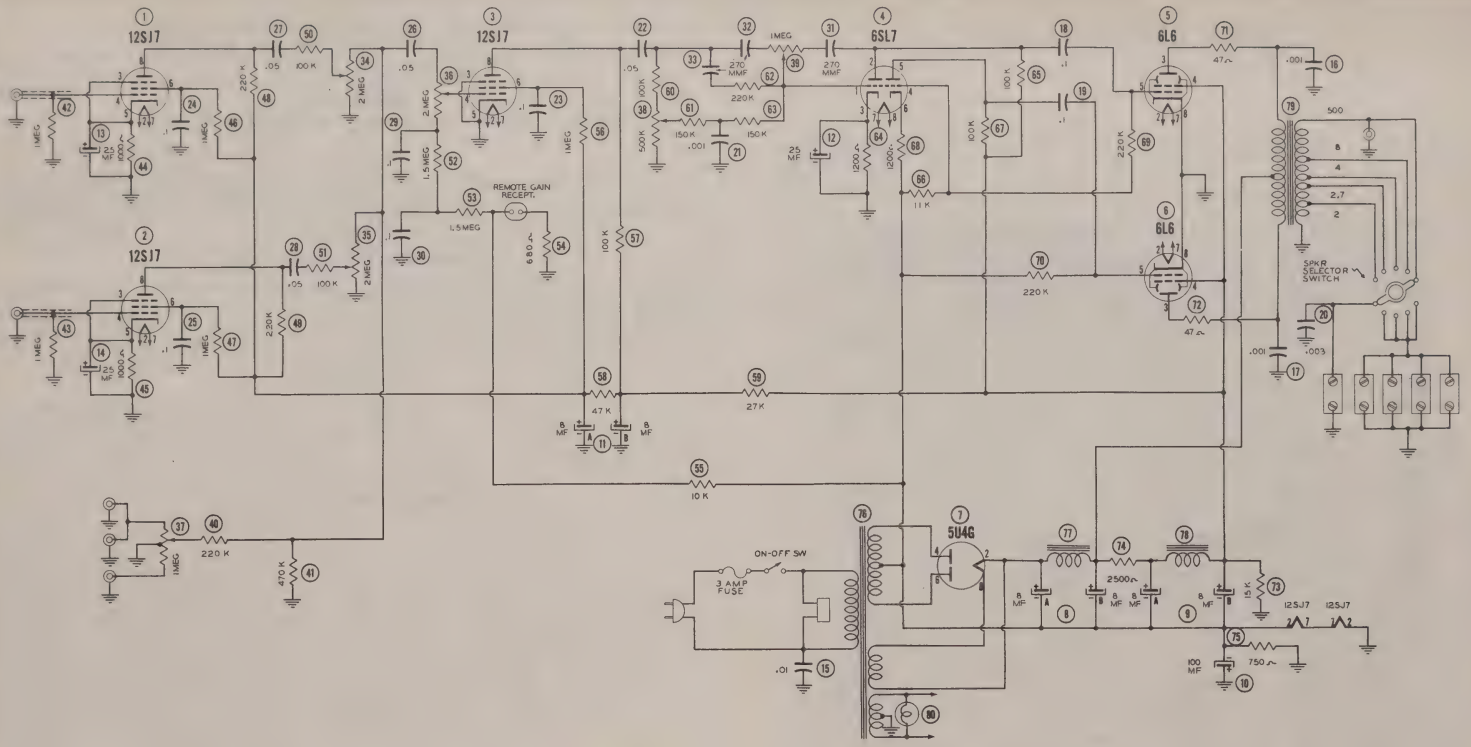
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRLINE PART No.		
80	Bayonet	6-8V	0.25A	Blue	39A003		Type #44

DATE 3/49-#496-4 SET #58-FOLDER #4

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SJ7	0V	0V	.6VDC	0V	.6VDC	18VDC	-10VDC	35VDC
2	12SJ7	0V	-21VDC	.6VDC	0V	.6VDC	18VDC	-10VDC	35VDC
3	6SJ7	0V	3.3VAC	0V	-.6VDC	0V	25VDC	3.3VAC	25VDC
4	6SL7GT	0V	160VDC	1.6VDC	-20VDC	155VDC	-19VDC	3.3VAC	3.3VAC
5	6L6G	0V	3.3VAC	370VDC	290VDC	-17VDC	370VDC	3.3VAC	0V
6	6L6G	0V	3.3VAC	370VDC	250VDC	-17VDC	370VDC	3.3VAC	0V
7	5U4G	0V	390VDC	0V	380VAC	0V	380VAC	0V	390VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SJ7	0Ω	0Ω	1KΩ	1 Meg.	1KΩ	1.1 Meg.	11Ω	300KΩ
2	12SJ7	0Ω	23Ω	1KΩ	1 Meg.	1KΩ	1.1 Meg.	11Ω	300KΩ
3	6SJ7	0Ω	.05Ω	0Ω	3 Meg.	0Ω	1.1 Meg.	.05Ω	130KΩ
4	6SL7GT	300KΩ	110KΩ	1.2KΩ	11KΩ	110KΩ	1.2KΩ	.05Ω	.05Ω
5	6L6G	0Ω	.05Ω	17KΩ	15KΩ	230KΩ	17KΩ	.05Ω	0Ω
6	6L6G	0Ω	.05Ω	17KΩ	15KΩ	230KΩ	17KΩ	.05Ω	0Ω
7	5U4G	0Ω	18KΩ	INF	88Ω	INF	96Ω	INF	18KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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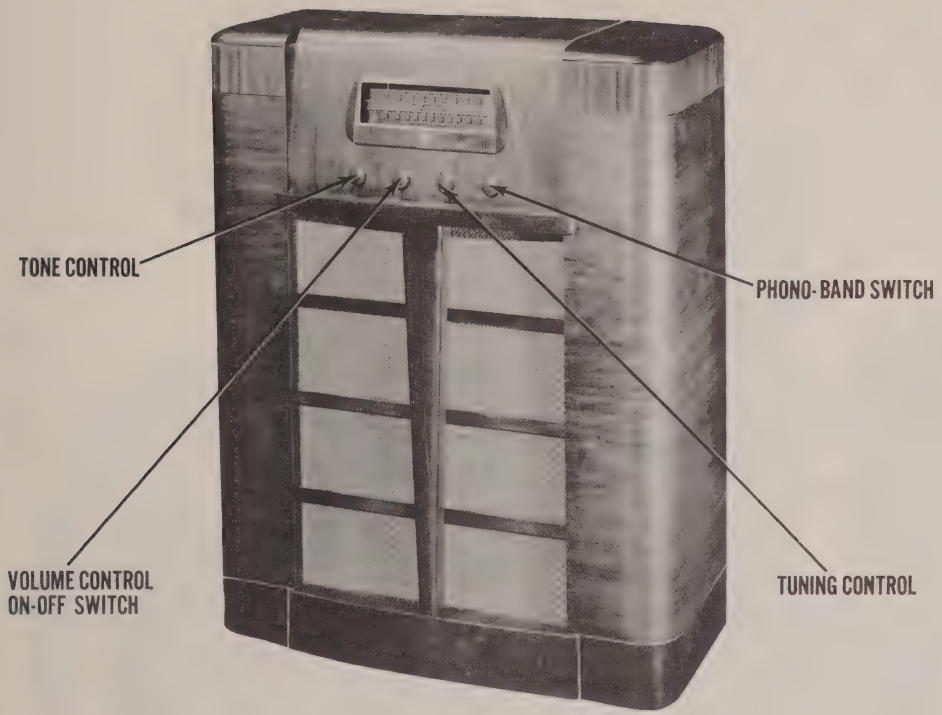
496-4

1. DC Voltage measurements are at 20,000 ohms per volt: AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

AIRLINE
MODEL 84WG-2506B



AIRLINE
MODEL 84WG-2506B

TRADE NAME	Airline, Model 84WG-2506B		
SUPPLIER	Montgomery Ward & Co., 619 Chicago Avenue, Chicago, Illinois		
TYPE SET	AC Operated AM-FM Superheterodyne Receiver with Loop Antenna.		
TUBES(SEVEN)	Types 6BE6 Converter, 6BA6 1st IF Amp., 6BA6 FM 2nd IF Amp., 6AL5 FM Detector, 6AV6 AM DET-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier		
POWER SUPPLY	105-125 Volts AC	RATING	.50 Amp., @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1600KC	FREQ. MOD.	88-108MC

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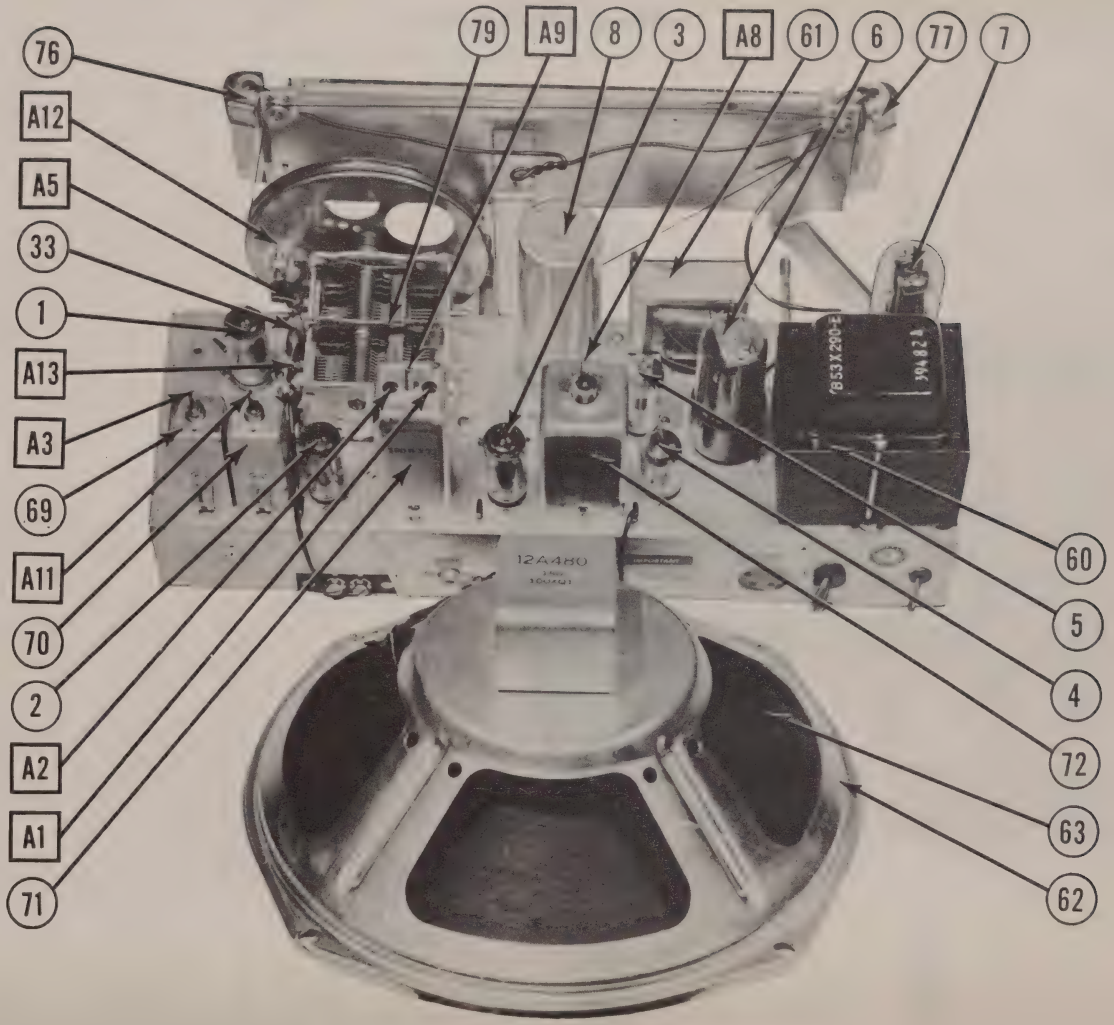
DATE 3/49 496-5 SET #58 FOLDER #5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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6BE6	6BE6	7CH	
2	1st IF Amp.	6BA6	6BA6	7BK	
3	FM 2nd IF Amp.	6BA6	6BA6	7BK	
4	FM Detector	6AL5	6AL5	6BT	
5	AM DET-AVC-AF	6AV6	6AV6		
6	Power Output	6V6GT	6V6GT	7AC	
7	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8A	40	350	45x359	AF88J4A	UF4445C	DY-406	EL-432	Filter ●
B	40	350						Filter ■
C	20	350		PRS350-24	BR2045			Filter ▲
D	20	25						Cathode Bypass
9	5	10	45x361	PRS150/4	BR550	M-4-450	TA-5	Stabalizing Cap
10	.001	600	H66102	1084-001	GT16D2	STM-16-001	TR-21	Output Plate Bypass
11	.02	400	D66203	484-02	GT4S2	ST-4-02	TC-12	Audio Coupling
12	.005	600	D66502	684-005	GT6D5	ST-6-005	TC-25	Audio Coupling
13	.004	600	D66402	684-004	GT6D4	ST-6-004	TC-24	Tone Comp.
14	.04	200	D66403	484-05	GT6S4	ST-6-04	TC-14	Tone Comp.
15	.05	200	D66503	484-05	GT2S5	ST-4-05	TC-15	AVC Filter
16	.01	600	D66103	684-01	GT6S1	ST-6-01	TC-11	AM Osc. Decoupling
17	220	500	47x468	1468-00025	5W5T25	MO.5-325	1FM-325	AF Plate Bypass
18	68	500	47x471	1468-000075	5W5Q7	MOS.5-47	MS-47	Tone Comp.
19	330	500	47x526	1468-00035	5W5T3	MO.5-33	1FM-335	FM Det. Diode Load Cap
20	2700	500	47x492	1467-0025	1W5D25	MW.5-225	1FM-23	De-emphasis
21A	60	500	47x112	1468-00005	5W5Q5	MO.5-45	1FM-45	AM Diode RF Filter
B	60	500		1468-00005	5W5Q5	MO.5-45	1FM-45	AM Diode RF Filter
22	5000	300	47x507	1467-005	1D5D5	MW.5-25	1FM-25	2nd IF Decoupling Cer.
23	47	500	47x483	1468-00005	5W5Q5	MO.5-45	1FM-45	IF Coupling
24	5000	300	47x507	1467-005	1D5D5	MW.5-25	1FM-25	1st IF Decoupling Cer.
25	5000	300	47x507	1467-005	1D5D5	MW.5-25	1FM-25	1st IF Cathode Bypass Cer.
26	5000	300	47x507	1467-005	1D5D5	MW.5-25	1FM-25	Conv. Decoupling Cer.
27	10	500	47x512	1469-00001	5R5Q1	MOS.5-41	MS-41	Fixed Trimmer Cer.
28	100	500	47X476	1468-0001	5W5T1	MO.5-31	1FM-31	Osc. Feedback
29	47	300	47x517	1468-00005	5W5Q5	MO.5-45	1FM-45	Osc. Grid Cap. Cer.
30	12	300	47x522					Fixed Trimmer Cer.
31	10	500	47x523	1469-00001	5R5Q1	MOS.5-41	MS-41	Fixed Trimmer Cer.
32	100	500	47x511	1469-0001	5R5T1	MOS.5-31	MS-31	Fixed Padder Cer.
33	6	300	47x521					Fixed Trimmer Cer.
34	500	300	47x508	1468-0005	5W5T5	MO.5-35	1FM-35	Fil. Bypass Cer.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
35A	500KΩ	½	36x372	D13-133X	AT-78	Volume Control tapped @ 100KΩ
B	Shaft		Not Req.	E	Kss-3	Attach to 35A per Instructions.
C	Switch		Not Req.	H	SW-A	Attach to 35A Per Instructions.
36A	3 Meg.	½	40x235	D13-140	AM-67-Z	Tone Control
B	Shaft		Not Req.	E	Kss-3	Attach to 36A Per Instructions.

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: MEISSNER PART No.	
64	Loop Ant.	.1Ω	1.5Ω	9A1972		† Includes resistance 2nd IF-FM Coil
65	FM Dipole		0Ω	9A2001		
66	FM Ant Coil		0Ω	9A1956		
67	AM Osc. Coil	.5Ω	5.1Ω	9A1929	14-1060	
68	FM Osc. Coil		0Ω	9A1938		
69	1st IF-AM	15.5Ω	15.1Ω	9A1934	16-6878	
70	1st IF-FM	.6Ω	.1Ω	9A1932		
71A	2nd IF-AM	152†	13.5Ω	9A1973		
B	2ndIIF-FM					
72	FM Ratio Det	2.6Ω	.1Ω	9A1970		
73	Fil. Choke		.3Ω	9A1932		
74	RF Plate Chk		.3Ω	9A1882		
75	Parasitic Choke		0Ω	9A1940		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA	INSTALLATION NOTES
76	Bayonet	6-8V	0.15A	Brown	7A103		Type #47
77	Bayonet	6-8V	0.15A	Brown	7A103		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
78	Switch	2A375	Band
79	2 Gang Var. Cap.	14A204	(40-540MMF,45-225MF)
A6	Trimmer	17A235	BC Ant. Adj.
A12	Trimmer	26A439	FM Osc. Adj.
	Dial Glass	58X699	
	Dial Pointer	15X241	
	Knob	10A651	Tuning
	Knob	10A652	Volume
	Knob	10A654	Tone
	Knob	10A655	Band

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.		
37	3.6Ω	½	43X233		Or.-Blue-Gold	Parasitic Supp.
38	22KΩ	½	B84223	BTS-22K	Red-Red-Or.	Osc. Grid
39	3900Ω	½	B83392	BTS-3900	Or.-White-Red	Osc. Anode Decoup.
40	1200Ω	½	B84122	BTS-1200	Br.-Red-Red	Conv. Plate Decoup.
41	8200Ω	2	D84822	BT-2-8200	Gray-Red-Red	Bleeder
42	68Ω	½	B83680		Blue-Gray-Blk.	1st IF Cathode
43	1200Ω	½	B84122	BTS-1200	Br.-Red-Red	1st IF Decoup.
44	2.2 Meg.	½	B85225	BTS-2.2 Meg	Red-Red-Grn.	AVC Net.
45	47KΩ	½	B85473	BTS-47K	Yl.-Vi.-Or.	Diode Filter
46	2.2 Meg.	½	B85225	BTS-2.2 Meg	Red-Red-Grn.	2nd IF Grid
47	1000Ω	½	B84102	BTS-1000	Br.-Blk.-Red	2nd IF Decoup.
48	27KΩ	½	B84273	BTS-27K	Red-Vi.-Or.	De-emphasis
49	680Ω	½	B85681	BTS-680	Blue-Gray-Br.	RF Filter
50	4.7Meg.	½	B85475	BTS-4.7 Meg	Yl.-Vi.-Grn.	AVC Net
51	15KΩ	½	B84153	BTS-15K	Br.-Grn.-Or.	Ratio Det. Diode Load
52	15KΩ	½	B84153	BTS-15K	BR.-Grn.Or.	Ratio DET. Diode Load
53	3.6Ω	½	43X233	BW-½-3.6	Or.-Blue-Gold	Series Rat. Det. Filament
54	15KΩ	½	B84153	BTS-15K	Br.-Grn.-Or.	Tone Comp.
55	10 Meg.	½	B85106	BTS-10 Meg.	Br.-Blk.-Blue	AF Grid
56	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl.	AF Plate Load
57	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl.	Output Grid
58	270Ω	½	B84271	BW-½-270	Red-Vi.-Br.	Output Cathode
59A	1000Ω	4	43X224	AB-1000		Filter
59	1400Ω	6		AB-1450		Filter

TRANSFORMER (POWER)

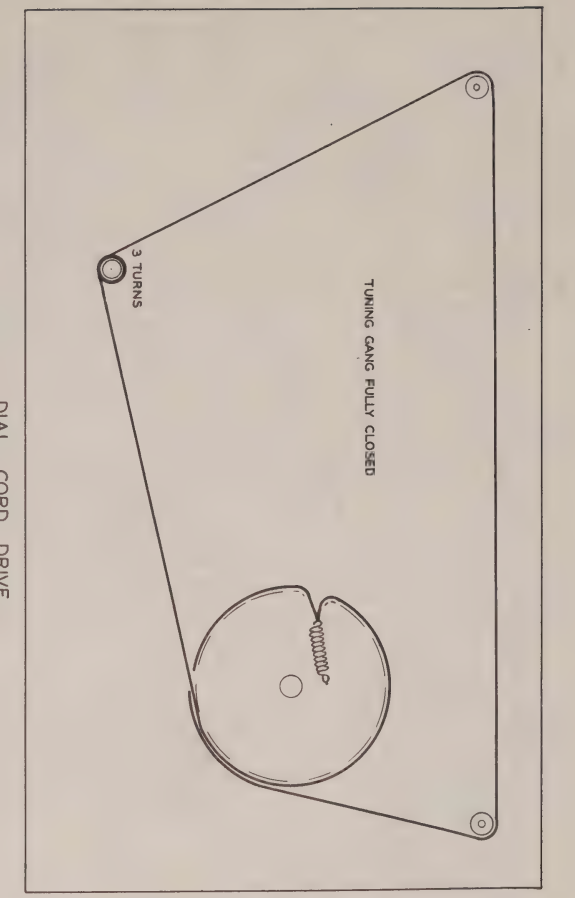
ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	AIRLINE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
60	117VAC @ .5A	520VCT .075ADC	5.2VAC @ 2.0A	6.7VAC @ 2.2A	53X290		T22R02	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
61	6000Ω	3.65Ω	475Ω	1.1Ω	51X134	A-3849	T22S87	A-2902	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	V. C. IMP.	AIRLINE PART No.	JENSEN PART No.	QUAM PART No.	
62	PM	3.65Ω	12A480	ST-119† MOD P10-T	10A31	† Replace output Transformer to match 6-9Ω voice coil.
	CONE DIA.	V. C. DIA.				
63	9 1/2 "	3/4 "				



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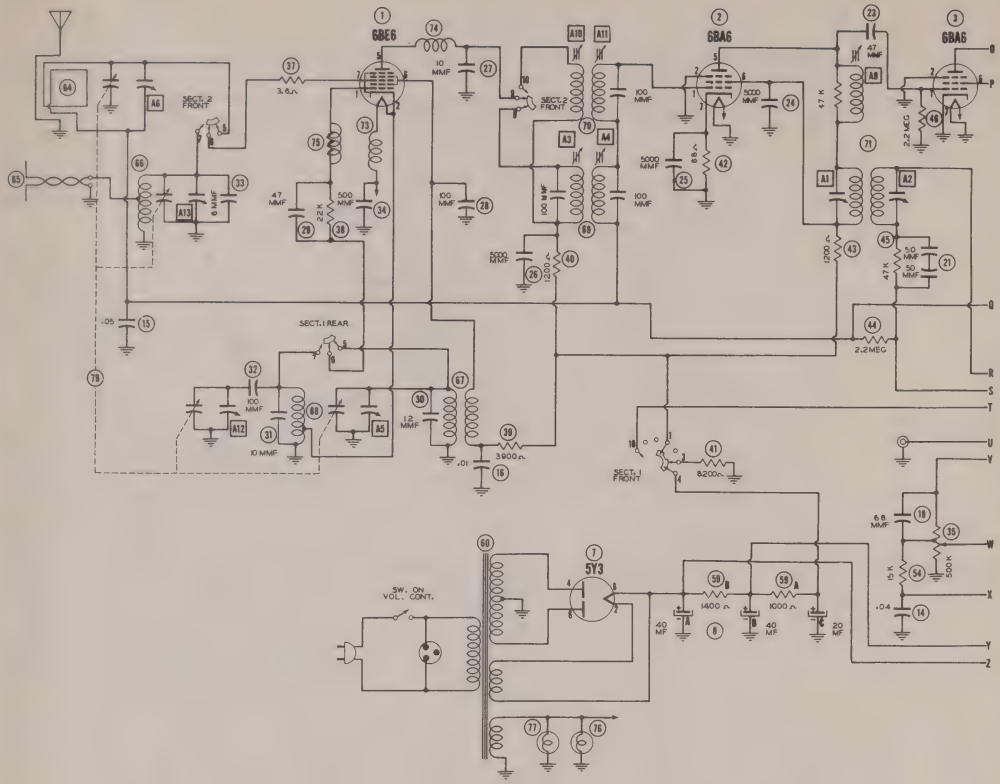

IF=455 KC AM

IF=10.7 MC FM

STAGE GAIN MEASUREMENTS

ANT-CONV GRID	60X	600KC
CONV GAIN	130X	IN 600KC OUT 455KC
IN IF TRANS	1X	455KC
IF TUBE	240X	455KC
OUT IF TRANS	.6X	455KC
AUDIO	35X	400∿
OUTPUT	30X	400∿

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

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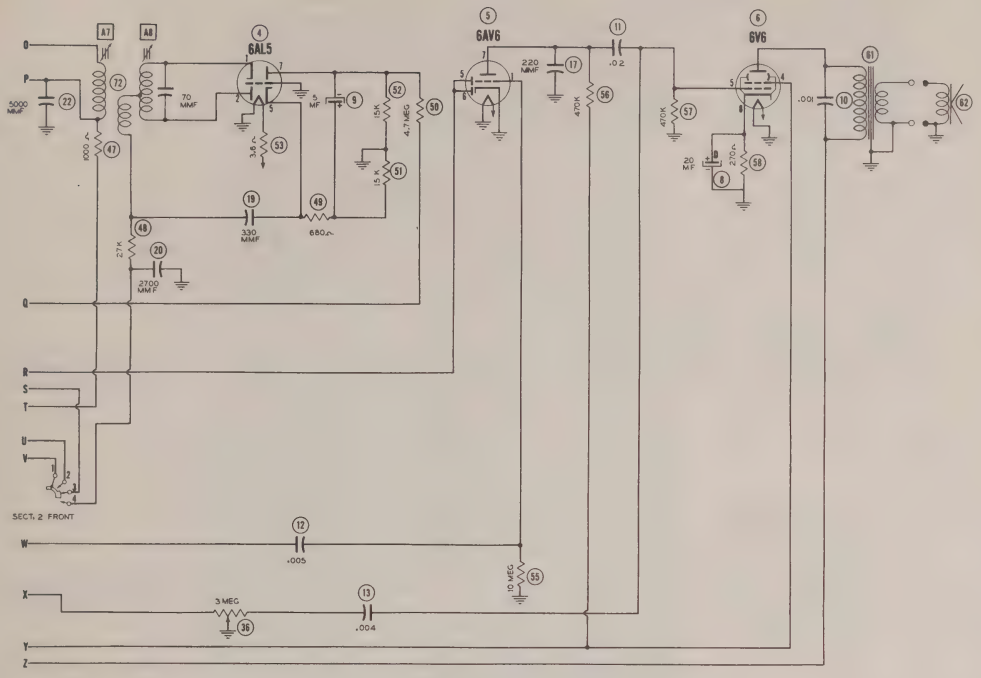

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1A	6BE6	§-5.9VDC	0V	0V	6.7VAC	135VDC	110VDC	-5.4VDC	
1B	6BE6	§-4VDC	0V	0V	6.7VAC	130VDC	105VDC	0V	
2	6BA6	-.3VDC	0V	0V	6.7VAC	120VDC	120VDC	1.2VDC	
3	6BA6	-.6VDC	0V	0V	6.7VAC	120VDC	120VDC	0V	
4	6AL5	-.2VDC	0V	0V	5.3VAC	.3VDC	.3VDC	-.3VDC	
5	6AV6	-.5VDC	0V	0V	6.7VAC	-.5VDC	-.5VDC	85VDC	
6	6V6	0V	6.7VAC	245VDC	190VDC	0V	0V	0V	9.2VDC
7	5Y3GT	0V	250VDC	0V	260VAC	0V	260VAC	0V	250VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1A	6BE6	22KΩ	0Ω	0Ω	.1Ω	10KΩ	11KΩ	1.7 Meg.	
1B	6BE6	22KΩ	0Ω	0Ω	.1Ω	70KΩ	75KΩ	200Ω	
2	6BA6	1.7 Meg.	0Ω	0Ω	.1Ω	10KΩ	10KΩ	1MΩ	
3	6BA6	2.2 Meg.	0Ω	0Ω	.1Ω	70KΩ	70KΩ	0Ω	
4	6AL5	430KΩ	430KΩ	0Ω	4.7Ω	16KΩ	15KΩ	15KΩ	
5	6AV6	10 Meg.	0Ω	0Ω	.1Ω	420KΩ	420KΩ	440KΩ	
6	6V6	INF	.1Ω	10KΩ	9KΩ	470KΩ	1Ω	0Ω	270Ω
7	5Y3GT	INF	10KΩ	INF	100Ω	INF	110Ω	INF	13Ω

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.
Note: 8.2KΩ Bleeder on AM.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

AM Alignment must be completed before FM Alignment is attempted.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 1 (Grid) of 6BA6 1st IF tube (2). Low side to chassis.	455KC	AM (Center position)	Tuning Cap fully open	Across Voice Coil	A1,A2	Adjust for maximum output.
2.	.1MFD	High side to pin 7 (Grid) of 6BE6. Low side to chassis.	"	"	"	"	A3,A4	" " " "
3.	.1MFD	"	1620KC	"	"	"	A5	" " " "
4.	50MMFD	High side to external Ant. lead. Low side to chassis.	1400KC	"	Tune for maximum output.	"	A6	Adjust for maximum output. Set dial pointer at 1400KC mark on dial.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Use Zero-Center Scale VTVM if available.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.01MFD	High side to pin 1 (Grid) of 6BA6 2nd IF tube (3). Low side to chassis.	10.7MC (Un-mod.)	FM (clockwise)	Tuning cap fully open	DC Probe to Point (A) Common to chassis.	A7	Adjust for maximum deflection.
6.	"	"	"	"	"	DC Probe to point (B) Common to chassis	A8	Adjust for Zero deflection. Repeat steps 5&6 until no further improvement can be made.
7.	"	High side to pin 1 (Grid) of 6BA6 1st IF tube (2). Low side to chassis.	"	"	"	DC Probe to point (A) Common to chassis.	A9	Adjust for maximum deflection.
8.	"	Disconnect lead from pin 7 (Grid) of 6BE6 to switch. Solder a 100KΩ resistor from pin 7 to chassis. High side of sig Gen. to pin 7. Low side to chassis.	"	"	"	"	A10, A11	Adjust for maximum deflection. Remove 100KΩ resistor and replace lead to pin 7 of 6BE6. Continue with FM-RF Alignment in step 9.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Us 120∿ sawtooth voltage in scope for horizontal deflections.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
5.	.01MFD	High side to pin 1 (Grid) of 6BA6 1st IF tube (2) Low side to chassis.	10.7MC (Freq.Mod.)	FM	Tuning Cap fully open	Vert. Amp. to point (A) Ground to chassis.	A7,A9	Disconnect 5MFD Cap (9) from point C. Adjust A7 and A9 for maximum amplitude, symmetry and coincidence of pattern per Fig1
6.	"	High side to pin 7 (Grid) of 6BE6. Low side to chassis.	"	"	"	"	A10,A11	Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig. 1. Reconnect cap. (9) to point C.
7.	"	"	"	"	"	Vert. Amp. to point (B) Ground to chassis.	A8	Adjust for maximum straightness of crossover lines and centering of crossover point of pattern per Fig. 2. Continue with FM-RF Alignment in step 9.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	300Ω Carbon resistor	High side to ungrounded FM Ant terminal. Low side to chassis.	108.5MC (Unmodulated)	FM	Tuning cap fully open	DC Probe to point (A) Common to chassis	A12	Adjust for maximum deflection.
10.	"	"	104.5MC (Unmodulated)	"	Tune for maximum deflection.	"	A13	Rock tuning cap and adjust for maximum deflect.

FIG.1

FIG. 2

BENDIX MODEL 55X4

TRADE NAME	Bendix, Model 55X4
MANUFACTURER	Bendix Radio, Div. of Bendix Aviation Corp, Baltimore 4, Maryland
TYPE SET	Three Power Operated Portable Superheterodyne Receiver With Loop Antenna
TUBES (FIVE)	Types 1R5 Converter, 1T4 IF Amp., 1U5. Det.-AVC-AF, 1LB4 Power Output, 117Z3 Rectifier.
POWER SUPPLY RATING	110-120 Volts AC-DC or 6 Volts "A" Supply and 67.5 Volts "B" Supply .16 Amp. @ 117 Volts AC or 50 MA @ 6 Volts DC and 10.5 @ 67.5 Volts DC
TUNING RANGE—BROADCAST	530 KC-1630 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Calibration marks on dial backplate are as follows (left to right) Extreme left hand dial pointer reference, 580KC, 965KC and 1475KC.

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD	High side to pin 6 1R5 (1) .Low side to B-.	455 KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to 200 MMF to reduce hum modulation.
2		Loop	1475 KC	1475 KC	"	A5, A6	Adjust for Maximum output. Check calibration at 580 KC & 965 KC. If tracking is not correct bend tuning cap. plates.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: BENDIX PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1U5	1U5	6BW	
4	Power Output	1LB4	1LB4	5AD	
5	Rectifier	11Z3	11Z3	4BR	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: BENDIX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	CE-4A00	AF886D4A*	UP443150‡	DY-419*	EL-443‡	Filter ◓
B	40	150		PRS25/100	BRH251	M-100-25	TA-50	Filter ◘
C	30	150						Filter ▲
D	100	25						Output Cath.Bypass
7	.05	200	CP-3S40	484-05	GT2S5	ST-4-05	TC-15	Line Filter
8	.1	400	CP-4T51	484-1	GT4P1	ST-4-1	72P2	Line Isolation
9	.002	600	CP-6T12	684-002	GT6SD2	ST-6-002	TC-22	Output Plate Bypass
10	.05	200	CP-2T40	484-05	GT2S5	ST-4-05	TC-15	AF Screen Bypass
11	.05	200	CP-2T40	484-05	GT2S5	ST-4-05	TC-15	AVC Filter
12	.05	200	CP-2T40	484-05	GT2S5	ST-4-05	TC-15	Converter Plate Bypass
13	.05	200	CP-2T40	484-05	GT2S5	ST-4-05	TC-15	Filament Bypass
14	.05	200	CP-2T40	484-05	GT2S5	ST-4-05	TC-15	Filament Bypass
15	680	300	CC-9K44	1468-00075	1W5T7	MO.5-37	1FM-37	Audio Coupling Cer.
16	47	500	CC-6A30	1468-00005	5W5Q5	MO.5-45	1FM-45	AF Plate Bypass
17	5000	300	CC-0M00	1467-005	1D5D5	MW.5-25	1FM-25	Audio Coupling Cer.
18	47	500	CC-6A30	1468-00005	5W5Q5	MO.5-45	1FM-45	Osc.Grid Cap.
19	1000	300	CC-9K50	1468-001	1W5D1	MW.5-21	1FM-21	RF Coupling Cer.
20	1.5	500	CC-9A12					Neutralizing. Cer.

* Omit Bypass Section
‡ Parallel Sections to Obtain Desired Capacity.

CONTROLS

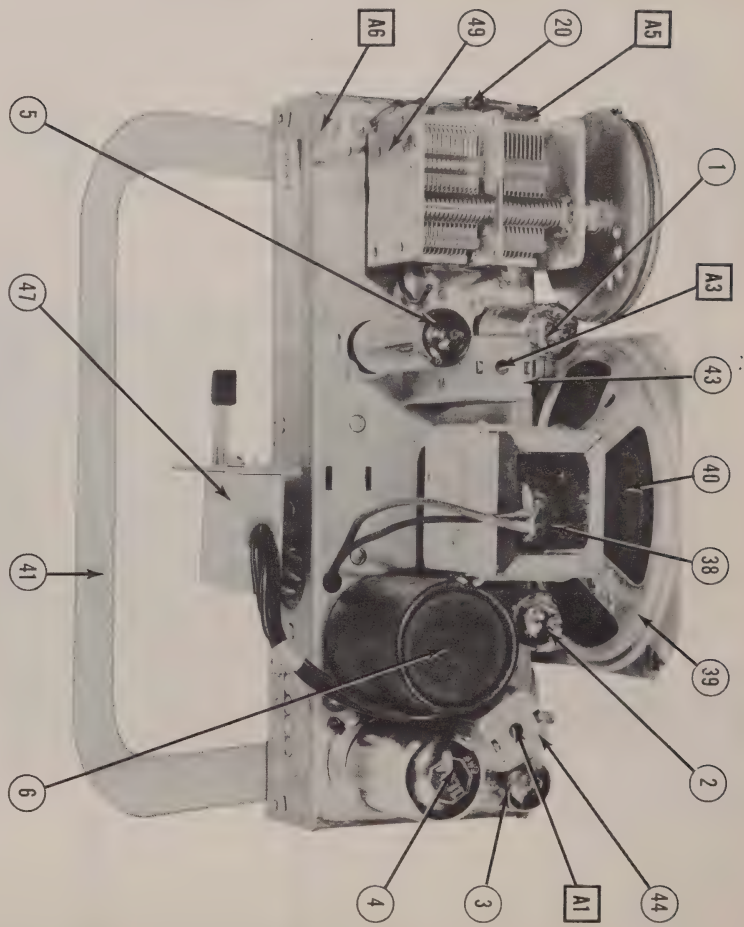
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BENDIX PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21A	1 Meg.	½	RV4 C06	D13-137	M-63-Z	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 21A per instructions.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BENDIX PART No.	IRC PART No.	IDENTIFICATION CODES
22	4.7 Meg.	½	RC-22A 475M	BTS-4.7 Meg.	Yl.-Vi-Grn. Converter Grid
23	1 Meg.	½	RC-22A 105M	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
24	100KΩ	½	RC-22A 104M	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
25	820Ω	½	RC-22A 821K	BTS-820	Gray-Red-Br. Filament String.
26	10KΩ	½	RC-22A 103K	BTS-10K	Br.-Blk.-Or. Converter Screen dropping.
27	3.3 Meg.	½	RC-22A 335M	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
28	10 Meg.	½	RC-22A 106M	BTS-10 Meg.	Br.-Blk.-Blue. AF Grid
29	1 Meg.	½	RC-22A 105M	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate load
30	4.7 Meg.	½	RC-22A 475M	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen dropping
31	47KΩ	½	RC-22A 473M	BTS-47K	Yl.-Vi.-Or. Diode Filter
32	2.2 Meg.	½	RC-22A 225M	BTS-2.2 Meg.	Red-Red-Grn. Output Grid.
33	1000Ω	½	RC-22A 102K	BTS-1000	Br.-Blk.-Red. Filament String
34	220KΩ	½	RC-22A 224M	BTS-220K	Red-Red-Yl. Line Isolation.
35	82Ω	2	RW2F08		Gray-Red-Blk. Surge Limiter
36	2000Ω	3	RW2M00	ABA-2000#	Filter-Voltage Dropping.
37	1800Ω	½	RC-23A 182K	BTS-1800	Br.-Gray-Red. Filter

Set slider at 1000Ω from one end.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		BENDIX PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
38	10KΩ	2.9Ω	460Ω	.3Ω	TA-0013	A-3881†	T-22848†	A-2934†	† Bend Mtg. tabs down. File out slots & mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			BENDIX PART No.	JENSEN PART No.	QUAM PART No.	
39	FIELD PM	V.C.IMP 2.9Ω	SP4R02	ST-113 MOD P4-X	4A1	
40	CONE DIA 3 7/8"	V.C.DIA 9/16"				

R F COILS

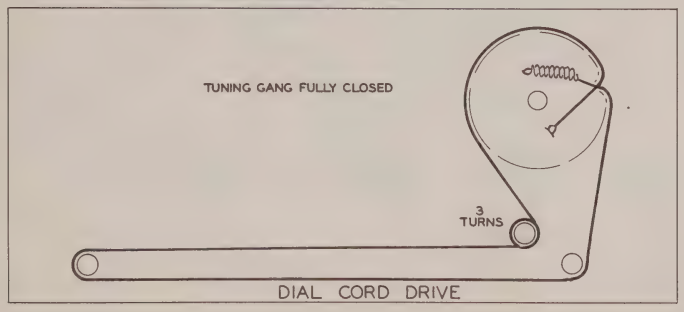
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	BENDIX PART No.	MEISSNER PART No.	
41	Loop Ant.		1Ω	AL-0Z19		
42	Osc. Coil	1.5Ω	5.5Ω	L05B05		
43	Input IF	17Ω	17Ω	T10C13	16-6668	
44	Output IF	18Ω	18Ω	T10D19		

BATTERIES

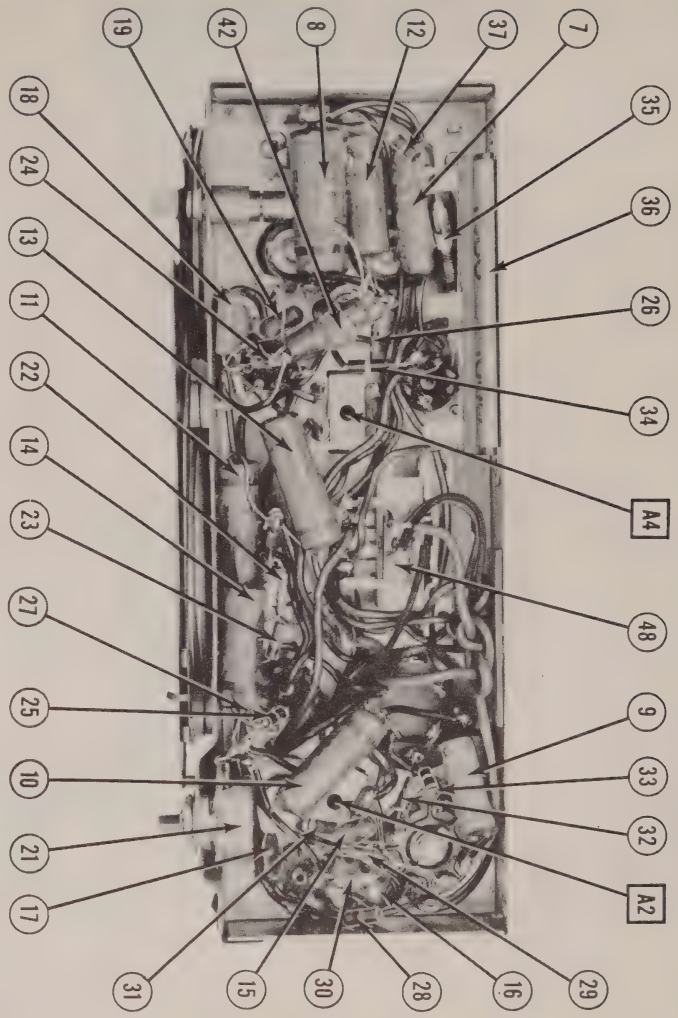
ITEM No.	VOLTAGE	BENDIX PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
45	6V "A"		935			1			4 Used in Series.
46	67.5V "B"			467			XX45		

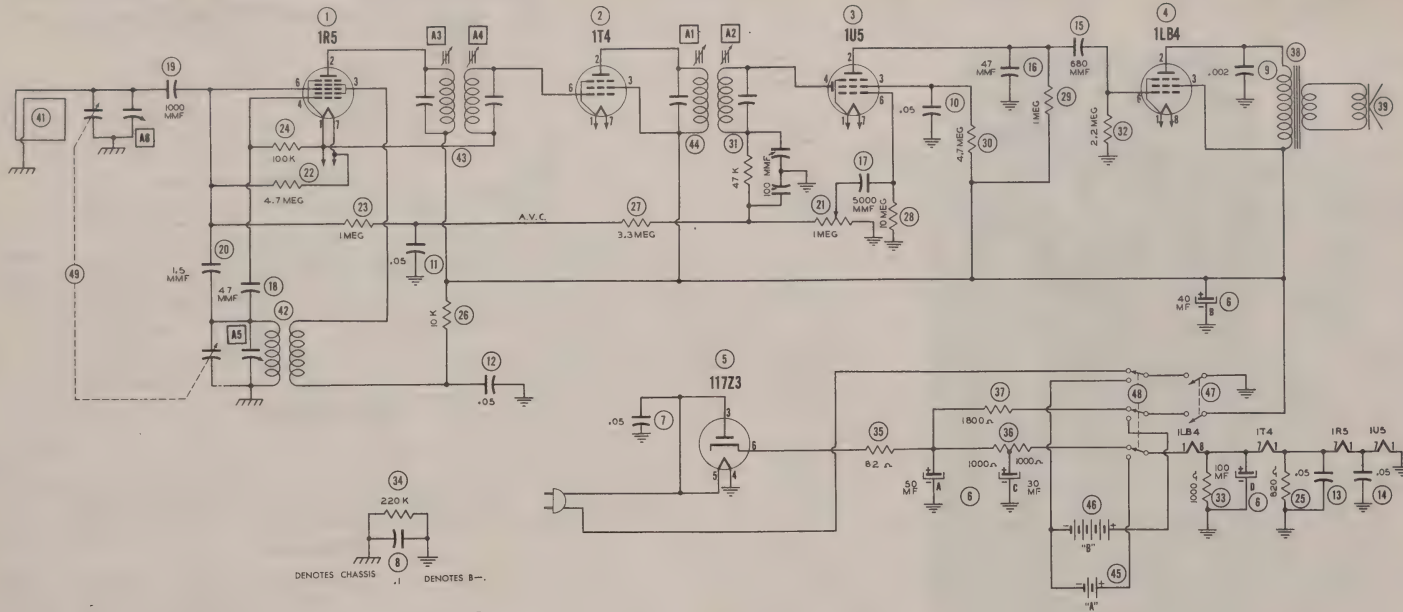
MISCELLANEOUS

ITEM No.	PART NAME	BENDIX PART No.	NOTES
47	Switch	SS1S00	On-Off
48	Switch	SS1C01	AC/DC- Battery
49	2 Gang Var. Cap.	CV0B06	(24-500 MMF, 31-207 MMF)
A6	Trimmer	CT1A19	Antenna Adj.
	Dial Pointer	1D0M24	
	Knob	KC0L02	
	Cabinet	2P0P00	



CHASSIS—BOTTOM VIEW





IF = 455 KC

VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1R5	1.5VDC	80VDC	58VDC	5-9VDC	1.5VDC	.1VDC	3.2VDC	
2	1T4	3.2VDC	80VDC	80VDC	0V	3.2VDC	1.5VDC	4.8VDC	
3	1U5	0V	17.5VDC	11VDC	-.1VDC	0V	0V	1.5VDC	
4	1LB4	6.2VDC	77VDC	80VDC	0V	80VDC	0V	0V	4.8VDC
5	117Z3	117VAC	0V	117VAC	0V	117VAC	110VAC	0V	

*TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1R5	∞	12KΩ	12KΩ	100KΩ	∞	2.5 Meg.	∞	
2	1T4	∞	12KΩ	12KΩ	INF	∞	30Ω	∞	
3	1U5	∞	1.1 Meg.	1.5 Meg.	950Ω	INF	10 Meg.	∞	
4	1LB4	∞	1.2KΩ	1.8KΩ	0Ω	4KΩ	2.5 Meg.	INF	∞
5	117Z3	0Ω	INF	2.5Ω	0Ω	2.5Ω	2.2KΩ	INF	

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
+ Measured From Pin 6 of 117Z3

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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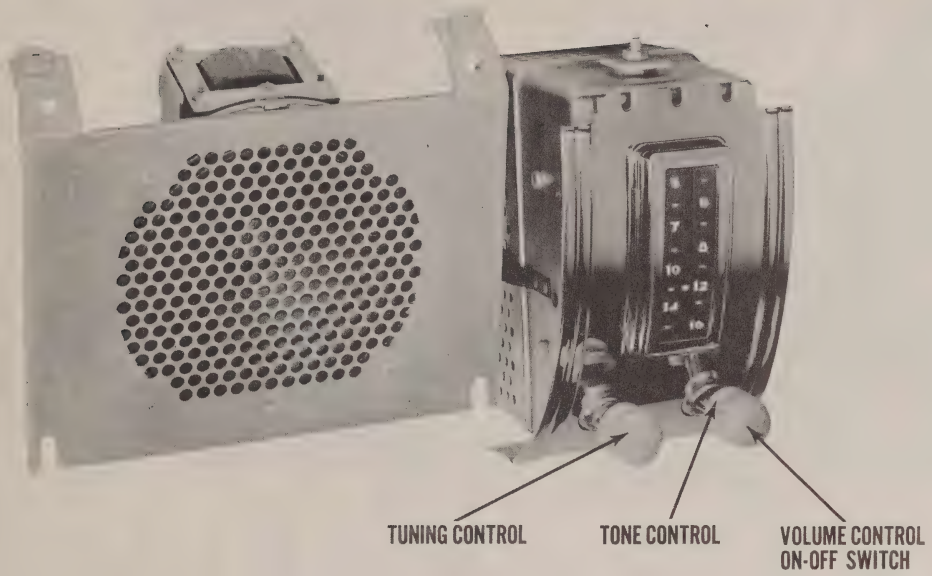
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



CHEVROLET
MODEL 986241

CHEVROLET MODEL 986241

TRADE NAME	Chevrolet Model 986241
SUPPLIER	Chevrolet Motor Div., General Motors Corp., Detroit 2, Michigan
TYPE SET	Battery Operated Custom Built 1949 Chevrolet Superhetrodyne Automotive Receiver.
TUBES (SIX)	Types, 7A7 RF Amp., 7Q7 Converter, 7A7 IF Amp., 7B6 Det.-AVC-AF, 7C5 Power Output, 7Y4 Rectifier.
POWER SUPPLY	6 Volt Storage Battery. Rating 7.6 Amp.@ 6 Volts DC.
TUNING RANGE—BROADCAST	535-1610 KC.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The dummy antenna used in steps 2,3,& 4 is a critical value and must be exact to insure proper tracking.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.02 MFD	High side pin 6 7Q7 (2). Low side to chassis.	257.5KC	Tuning cap. fully open.	Across Voice Coil	A1,A2, A3,A4	Adjust for maximum output.
2	65 MMF	High side to ant. connector. Low side to chassis.	1610KC	High freq. stop.	Across Voice Coil	A5,A6, A7	Adjust for maximum output.
3	65 MMF	High side to ant. connector. Low side to chassis.	1400KC	Tune for max. output.	Across Voice Coil	A8,A9, A10	Adjust for maximum output.
4	65 MMF	High side to ant. connector. Low side to chassis.	1610KC	High freq. stop.	Across Voice Coil	A6,A7	Adjust for maximum output.

After alignment has been completed, tune in 1400KC signal, and turn dial pointer screw until pointer coincides with 1400KC on dial.
After receiver has been installed in auto tune in weak station near 1400KC and adjust A7 for maximum signal.

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DATE 3/49-#496-7 SET #58-FOLDER #7

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CHEVROLET PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7A7	7A7	8V	
2	Converter	7Q7	7Q7	8AL	
3	IF Amp.	7A7	7A7	8V	
4	Det.-AVC-AF	7B6	7B6	8W	
5	Power Output	7C5	7C5	6AA	
6	Rectifier	7Y4	7Y4	5AB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CHEVROLET PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	350	1218633	AF32K4A		DY-310	EL-326	Filter■
B	20	350						Filter▲
C	20	25						Cathode Bypass
8	.5	100	7240248	484-5	GT2P5	SHH-1	68P25	Hash Filter
9	.5	100	7240248	484-5	GT2P5	SHH-1	68P25	Hash Filter
10	.004	1600	1218630		TV16D5-6		TR-24	Buffer
11	.01	600	7233608	684-01	GT6S1	ST-6-01	TC-11	Output Plate Bypass
12	.05	200	7230592	484-05	GT2S5	ST-4-05	TC-15	Audio Coupling
13	.005	120	7230767	484-005	GT6D5	ST-6-005	TC-25	Audio Coupling
14	.005	120	7230767	484-005	GT6D5	ST-6-005	TC-25	Tone Comp.
15	.05	200	7230592	484-05	GT2S5	ST-4-05	TC-15	Decoupling
16	.01	120	7233608	484-01	GT2S1	ST-4-01	TC-11	IF Cathode Bypass
17	.05	200	7230592	484-05	GT2S5	ST-4-05	TC-15	AVC Filter
18	500	500	1216881	1468-0005	5W5T5	MO.5-35	1FM-35	Output Grid Bypass
19	1420	500	1218631	1467-0015	1W5D15	MW.5-215	1FM-215	Converter Anode Decoup.
20	50	500	7236141	1468-00005	5W5Q5	MO.5-45	1FM-45	Oscillator Grid
21	500	500	1218632	1468-0005	5W5T5	MO.5-35	1FM-35	Fixed Trimmer
22	300	500	1215553	1468-0003	1W5D3	MO.5-33	1FM-33	Fixed Trimmer
23	10	500	7234242	1468-00001	5W5Q1	MO.5-41	1FM-41	RF Coupling

CONTROLS

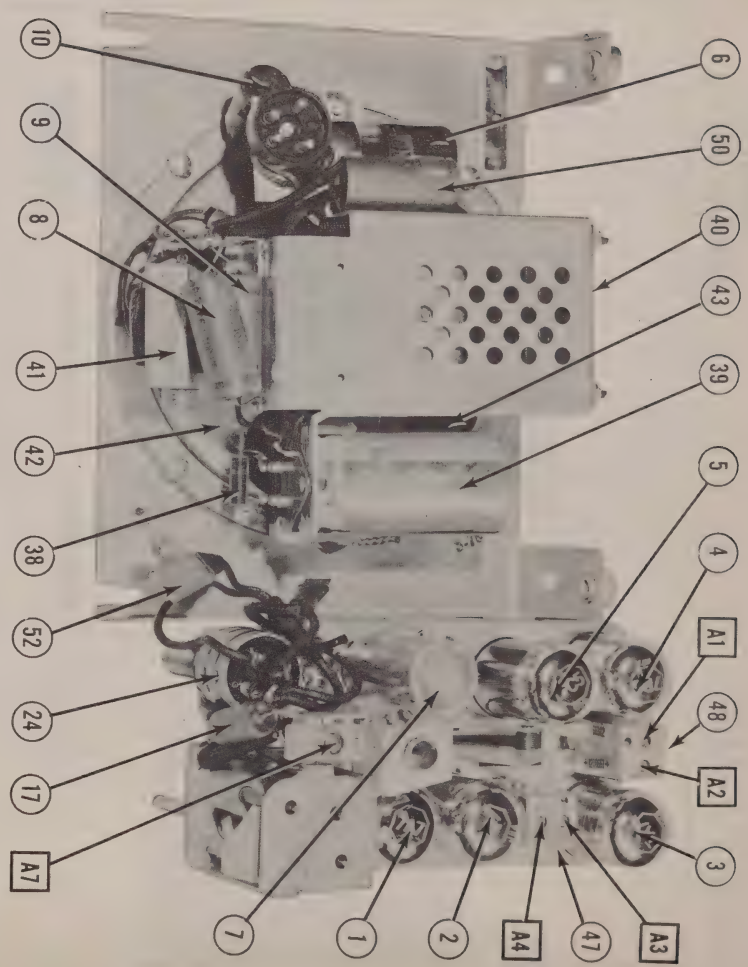
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CHEVROLET PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
24A	500KΩ		1218641			Volume Control and Switch. See Note.
B	500KΩ					Tone Control. See Note.

Note: This is a Dual Control with a concentric shaft.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CHEVROLET PART No.	IRC PART No.	IDENTIFICATION CODES
25	22KΩ	1	1216156	BTA-22K	Red-Red-Or. RF Plate Load
26	1 Meg.	½	1213282	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
27	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AVC Network
28	22KΩ	½	1214550	BTS-22K	Red-Red-Or. Oscillator Grid
29	33KΩ	1	7242447	BTA-33K	Or.-Or.-Or. Converter Screen dropping.
30	1 Meg.	½	1213282	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
31	3300Ω	½		BTS-3300	Or.-Or.-Red IF Cathode
32	82KΩ	½	1214554	BTS-82K	Gray-Red-Or. IF Screen dropping
33	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AF Grid
34	1 Meg.	½	1213282	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
35	220KΩ	½		BTS-220K	Red-Red-Or. Output Grid
36	270Ω	1	1213846	BW-1-270	Red-Vi.-Br. Output Cathode
37	1800Ω	2	1214573	BT-2-1800	Br.-Gray-Red Filter
38	150Ω	1	1211005	BW-1-150	Br.-Grn.-Br. Hash Suppression.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA: CHEVROLET PART No.	REPLACEMENT DATA: RADIART PART No.	INSTALLATION NOTES
39	Interrupter	6VDC	115~	1218006	5301	

TRANSFORMER (VIBRATOR)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: CHEVROLET PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	REPLACEMENT DATA: MERIT PART No.
40	6V. DC @3.1A	290V.AC CT@.044A			1218663			

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CHEVROLET PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
41	6200Ω	3.5Ω	500Ω	.85Ω	1218662	A-3877	T22846	A-2930	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: CHEVROLET PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	INSTALLATION NOTES
	FIELD	VC IMP.		ST-110		
42	4.1Ω	3.5Ω	1218657	MOD. P6-V	6EV6	
	CONE DIA.	VC DIA.				
43	6"	2 1/4"				

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: CHEVROLET PART No.	REPLACEMENT DATA: MEISSNER PART No.	
44	Antenna Loading Coil		10Ω			Items 44,45, and 46 obtainable under part No. 1218664
45	RF Coil		10Ω			
46	Osc. Coil		3Ω			
47	Input IF	20Ω	20Ω	1218660		
48	Output IF	20Ω		1218661		
49	RF Spark Choke		6Ω	1218639		
50	Hash Choke		0Ω	1218643		

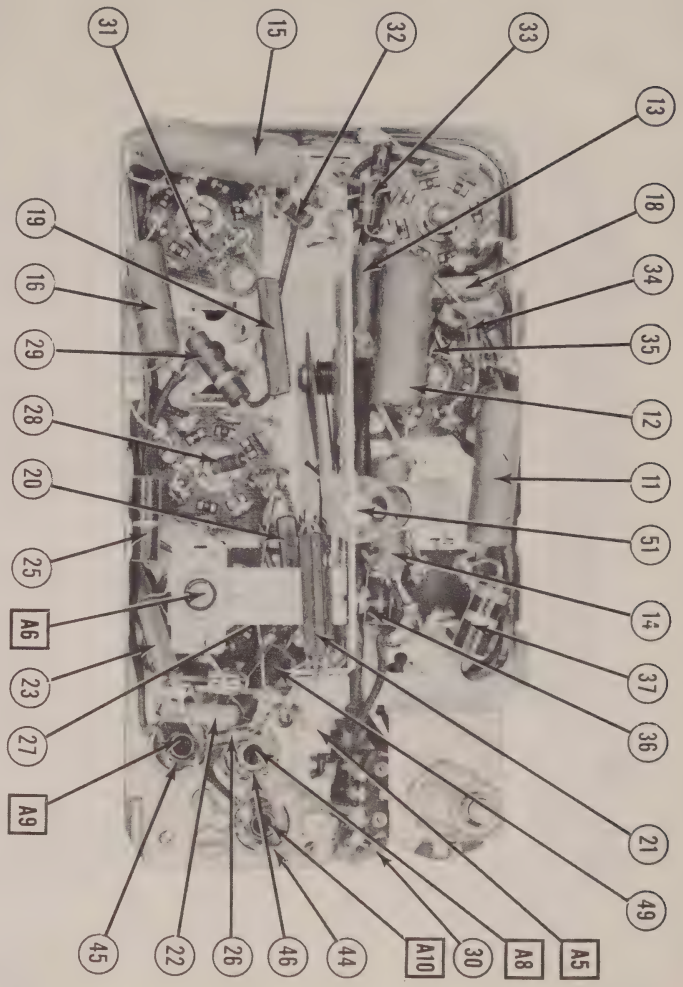
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: CHEVROLET PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
51	Bayonet	6-8V	0.4A	White	125588		Type #55

MISCELLANEOUS

ITEM No.	PART NAME	CHEVROLET PART No.	NOTES
52	Spark Plate	1218629	
53	Fuse	147685	14 Amp.
A5	Trimmer	1218635	Oscillator Adjustment
A6	Trimmer	1218636	RF Adjustment
A7	Trimmer	1218634	Antenna Adjustment
	Dial	1218644	
	Dial Pointer	1218648	
	Knob	7257930	Tone
	Knob	7257928	Volume or tuning.

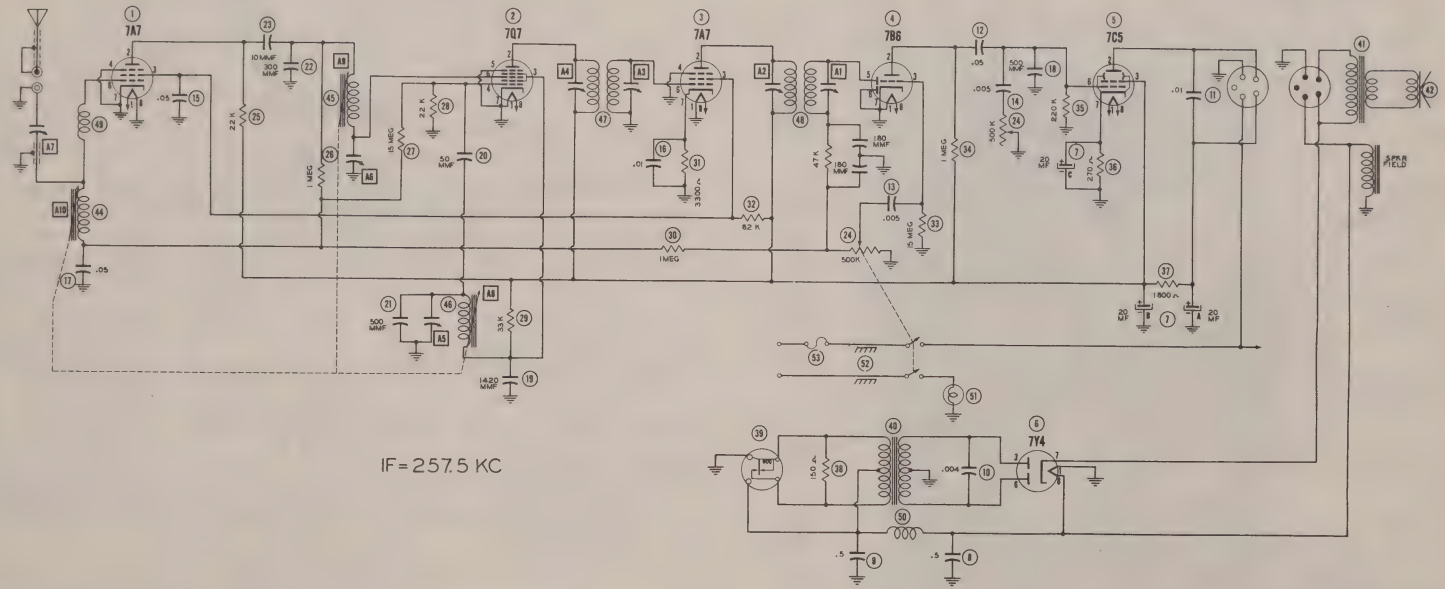
CHASSIS—BOTTOM VIEW



DATE 3/49-4496-7 SET #68-FOLDER #7

CHEVROLET MODEL 986241

CHEVROLET MODEL 986241



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	6.3VDC	100VDC	65VDC	0V	0V	-.4VDC	0V	0V
2	7Q7	6.3VDC	230VDC	65VDC	4-9.6VDC	0V	-.4VDC	0V	0V
3	7A7	6.3VDC	225VDC	65VDC	0V	0V	0V	3VDC	0V
4	7B6	6.3VDC	70VDC	-.7VDC	0V	-.4VDC	0V	0V	0V
5	7C5	0V	240VDC	220VDC	0V	0V	0V	10VDC	6.3VDC
6	7Y4	6.3VDC	230VDC	230VAC	230VAC	0V	230VAC	260VDC	0V

TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	.5Ω	*25KΩ	*85KΩ	0Ω	0Ω	1.5 Meg.	0Ω	0Ω
2	7Q7	.5Ω	*1.8KΩ	34KΩ	27KΩ	0Ω	2.5 Meg.	0Ω	0Ω
3	7A7	.5Ω	*1.8KΩ	83KΩ	0Ω	0Ω	20Ω	3.3KΩ	0Ω
4	7B6	.5Ω	*1 Meg.	15 Meg.	0Ω	560KΩ	0Ω	0Ω	0Ω
5	7C5	0Ω	*500Ω	*1.8KΩ	21KΩ	7ΜΩ	22ΜΩ	270Ω	.5Ω
6	7Y4	.5Ω	30ΜΩ	29ΜΩ	29ΜΩ	INF	31ΜΩ	300ΜΩ	0Ω

* Measured From Pin 7 of 7Y4

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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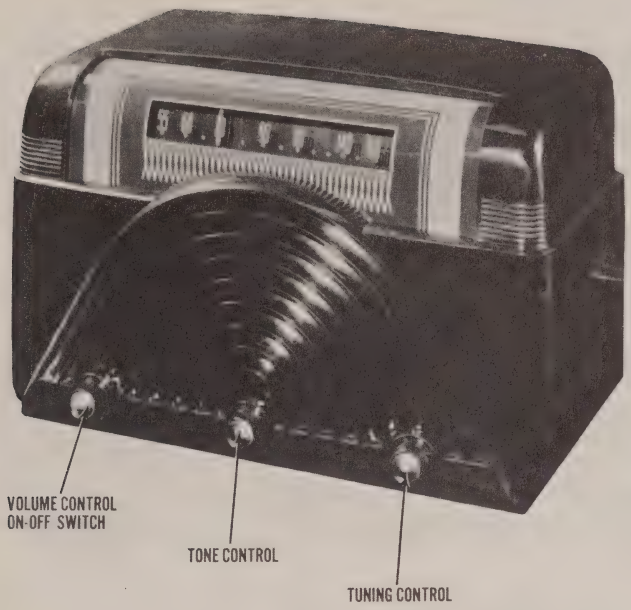
1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.



CROSLEY
MODEL 9-101

CROSLEY 9-101

TRADE NAME	Crosley, Model 9-101
MANUFACTURER	Crosley Corp., 1329 Arlington St., Cincinnati, Ohio
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FIVE)	Types 1LN5 RF Amp., 1LA6 Converter, 1LN5 IF Amp., 1LH4 DET-AVC-AF, 1LB4 Power Output.
RATING	243 MA @ 1.5 Volts DC & 9.2 MA @ 90 Volts DC
POWER SUPPLY	1.5 Volts "A" Supply and 90 Volts "B" Supply in Pack Form.
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer, turn tuning cap. Fully closed and set left hand edge of pointer saddle 1 11/16" from left edge of dial back plate.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 6 (Grid) 1LA6. (V2). Low side to chassis.	455KC	Tuning Cap 1/4 turn from fully closed	Across Voice Coil	A1, A2 A3, A4	Adjust for maximum output.
2.	.01MFD	High side to pin 6 (Grid) 1LN5(V1) Low side to chassis.	600KC	600KC	"	A5	Preset A6 1/2 turn from its closed position. Adjust A5 for maximum output.
3.	.01MFD	High side to Ant. terminal. Low side to GND.	1620KC	Tuning Cap fully open	"	A6	Adjust for maximum output.
4.	200MMF	"	1400KC	Tune for max. output	"	A7 A8	" " " "
5.	200MMF	"	600KC	600KC	"	A5	Rock tuning cap and adjust for maximum output. Repeat steps 3, 4, and 5.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		CROSLEY PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	1LN5	1LN5	7AC	
V2	Converter	1LA6	1LA6	7AK	
V3	IF Amp.	1LN5	1LN5	7AO	
V4	DET-AVC-AF	1LH4	1LH4	5AG	
V5	Power Output	1LB4	1LB4	5AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	CROSLEY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.		
C1	15	100	39358-13	PR8150/16	BR1615	M-16-150	UT161	RF Bypass	
C2	2.2		W-137398-4					RF Coupling	Cer.
C3	10		C-137727-47	1469-00001	5R5Q1	MOS.5-41	MS-41	Fixed Trimmer	Cer.
C4	.05	200	39001-17	P288-05	GT2S5	ST-4-05	TM-15	AVC Filter	
C5	100		C137727-1	1468-0001	SW5T1	MO-5-31	1FM-31	Osc. Grid Cap	Cer.
C6	.05	200	39001-17	P288-05	GT2S5	ST-4-05	TM-15	Decoupling	
C7	100		C-137727-1	1468-0001	SW5T1	MO.5-31	1FM-31	Diode Filter	Cer.
C8	.003	600	39001-76	P688-003	GT6D3	ST-6-003	TM-23	Audio Coupling	
C9	.0001	600	39001-1	1468-0001	GT6T1	MO.5-31	TC-31	AF Plate Bypass	
C10	.003	600	39001-76	P688-003	GT6D3	ST-6-003	TM-23	Audio Coupling	
C11	.001	600	39001-7	P688-001	GT6D1	ST-6-001	TM-21	Tone Comp.	
C12	.003	600	39001-76	P688-003	GT6D3	ST-6-003	TM-23	Output Plate Bypass	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	CROSLEY PART No.	IRC PART No.	CLAROSTAT PART No.	
R1A	1 Meg.	½	39368-14	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	E	Kss-3	Attach to R1A Per Instructions
C	Switch		39369-2	42	SW-A2	Attach to R1A Per Instructions
R2A	2 Meg.	½	39368-11	D13-139	AM-66-Z	Tone Control
B	Shaft		Not Req.	E	Kss-3	Attach to R2A Per Instructions

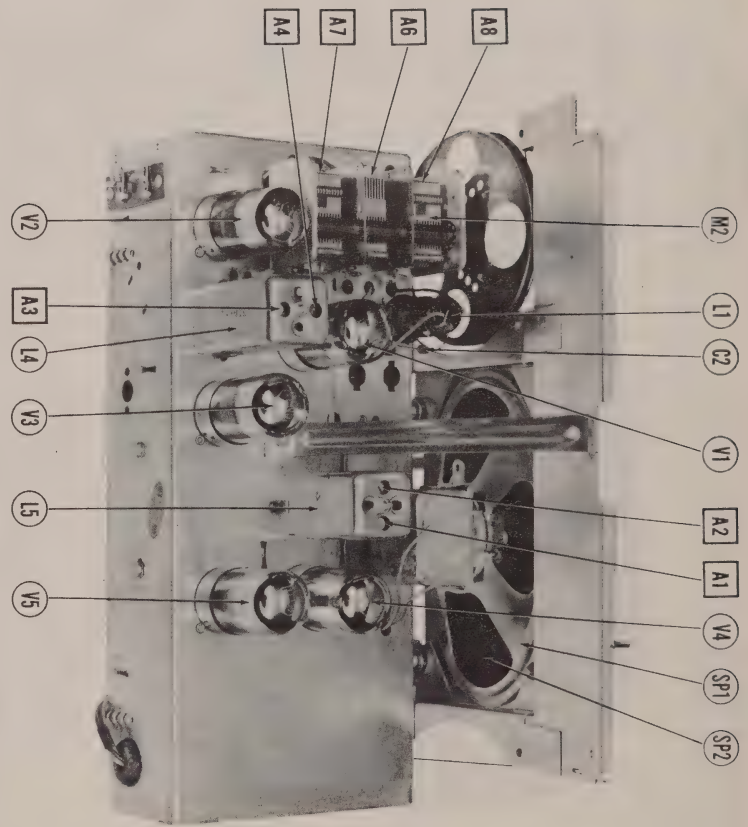
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	CROSLEY PART No.	IRC PART No.		
R3	220KΩ	½	39373-80	BTS-220K	Red-Red-Yl.	Osc. Grid
4	56KΩ	½	39373-69	BTS-56K	Grn.-Blue-Or.	Screen Decoupling
5	68KΩ	½	39373-71	BTS-68K	Blue-Gray-Or.	Diode Filter
6	10 Meg.	½	39373-107	BTS-10 Meg.	Br.-Blk.-Blue	AVC Network
7	4.7 Meg	½	39373-102	BTS-4.7 Meg.	Yl.-Vi.-Grn.	AVC Network
8	3300Ω	½	39373-44	BTS-3300	Or.-Or.-Red	Series Vol. Control
9	4.7 Meg.	½	39373-102	BTS-4.7 Meg.	Yl.-Vi.-Grn.	AF Grid
10	1 Meg.	½	39373-92	BTS-1 Meg.	Br.-Blk.-Grn.	AF Plate
11	1000Ω	½	39373-33	BTS-1000	Br.-Blk.-Red	Output Grid

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CROSLEY PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	14KΩ	3.5Ω	550Ω	.6Ω	B-143018	A-3381	T22S48	A-2934	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA CROSLEY PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V C IMP				
SP1	PM	3.5Ω	143688		46A1	
	CONE DIA	V C DIA				
SP2	4" x 6"	9/16"				

R F COILS

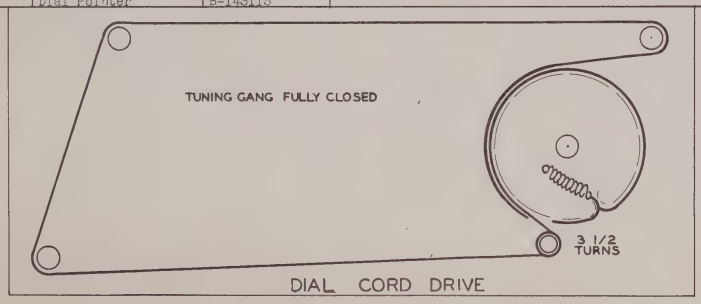
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA CROSLEY PART No.	REPLACEMENT DATA MEISSNER PART No.
L1	Ant. Loading Coil	48Ω	4.8Ω	AW-142997	14-1056
2	RF Coil	120Ω	7Ω	AW-142993	
3	Osc. Coil	1.5Ω	9Ω	AW-142975	14-1060
4	Input IF	18Ω	18Ω	AC-143013	16-6666
5	Output IF	18Ω	17Ω	AC-143034	

BATTERIES

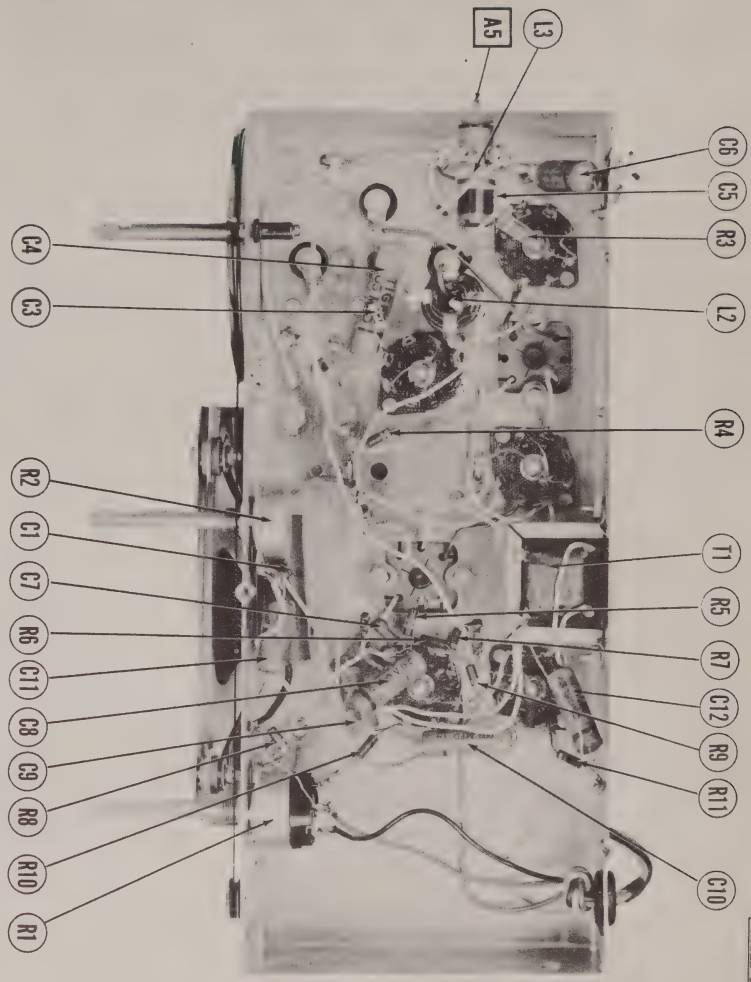
ITEM No.	VOLTAGE	CROSLEY PART No.	REPLACEMENT DATA EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	BURGESS "A"	BURGESS "B"	BURGESS "A-B"	INSTALLATION NOTES
M1	1.5V "A" 90V "B"	CR69			758			17GD60	

MISCELLANEOUS

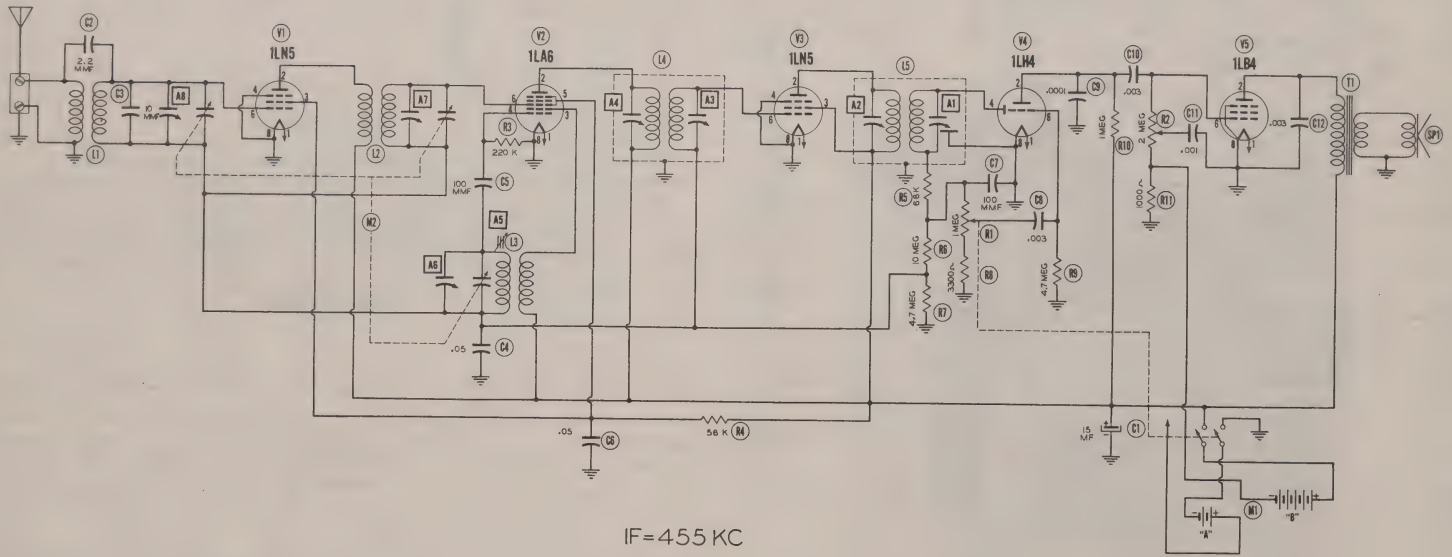
ITEM No.	PART NAME	CROSLEY PART No.	NOTES
M2	3 Gang Var. Cap.	AC-137073-20	(30-475MMF,26-370MMF,28-155MMF)
	Cabinet	R-138573-5	
	Dial Glass	C-143245	
	Knob	B-138574-4	
	Dial Pointer	B-143115	



CHASSIS—BOTTOM VIEW



CROSLEY MODEL 9-101



IF=455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V_1	1LN5	1.5VDC	85VDC	43VDC	0V	0V	-.1VDC	0V	0V
V_2	1LA6	1.5VDC	85VDC	85VDC	§-6.2VDC	43VDC	-.1VDC	0V	0V
V_3	1LN5	1.5VDC	85VDC	85VDC	0V	0V	-.1VDC	0V	0V
V_4	1LH4	1.5VDC	55VDC	0V	-.1VDC	-.1VDC	0V	-.1VDC	0V
V_5	1LB4	1.5VDC	83VDC	85VDC	0V	-9.2VDC	-1.2VDC	0V	0V

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V_1	1LN5	*	112Ω	156KΩ	0Ω	0Ω	3.5 Meg.	Inf.	*
V_2	1LA6	*	113Ω	11.8Ω	220KΩ	156KΩ	3.5 Meg.	Inf.	*
V_3	1LN5	*	118Ω	10Ω	0Ω	0Ω	3.5 Meg.	Inf.	*
V_4	1LH4	*	1 1 Meg.	Inf.	1 Meg.	1 Meg.	4.7 Meg.	3.5 Meg.	*
V_5	1LB4	*	1550Ω	10Ω	Inf.	1000Ω	2.2 Meg.	2.2 Meg.	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
‡MEASURED FROM B+ TERMINAL OF SWITCH

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496-8

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

EMERSON
MODEL 568A

EMERSON MODEL 568A

TRADE NAME	Emerson Model 568A (Ch. 120070A)
MANUFACTURER	Emerson Radio & Phono Corp., 111 8th Ave., New York, N. Y.
TYPE SET	Three Power Operated Portable Superheterodyne Receiver With Loop Antenna.
TUBES (FIVE)	Types 1R5 Converter, 1U4 IF Amp., 1S5 Det.-AVC-AF, 3V4 Power Output, 117Z3 Rectifier.
POWER SUPPLY RATING	105-125 Volts AC-DC or 7.5 Volts "A" Supply and 90 Volts "B" Supply in Pack Form. .15 Amps. @ 117 Volts AC or 58 MA @ 7.5 Volts DC and 14 MA @ 90 Volts DC.
TUNING RANGE—BROADCAST	535-1640KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD	High side to large stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1, A2 A3	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to 200 MMF to reduce hum modulation.
2		Loop	1640KC	Tuning cap. fully open.	Across voice coil	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		Loop	1400KC	Tune for maximum output.	Across voice coil	A5	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1U4	1U4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3V4	3V4	6BX	
5	Rectifier	117Z3	117Z3	4BR	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	80	150		AF886D4A*	UP7DJ63*			Filter●
B	40	150		PRS A150/80-40	BR3015			Filter■
C	30	150						Filter▲
D	100	25						Cathode Bypass
7	.05	400		484-05	GT4S5	ST-4-05	TC-15	Line Filter
8	.005	600		684-005	GT6D5	ST-6-005	TC-25	Output Plate Bypass
9	.005	400		484-005	GT6D5	ST-6-005	TC-25	Audio Coupling
10	.002	600		684-002	GT6D2	ST-6-002	TC-22	Audio Coupling
11	.01	400		484-01	GT4S1	ST-4-01	TC-11	AF Screen Bypass
12	.01	400		484-01	GT4S1	ST-4-01	TC-11	1st IF Grid Filter
13	.05	200		484-05	GT2S5	ST-4-05	TC-15	Osc. Plate Decoupling
14	.1	200		484-1	GT2P1	ST-2-1	TC-1	Filament Bypass
15	.05	200		484-05	GT2S5	ST-4-05	TC-15	Filament Bypass
16	.05	400		484-05	GT4S5	ST-4-05	TC-15	AVC Filter
17	220	500		1468-0002	SW5T2	MO.5-32	IFM-32	AF Plate Bypass
18	220	500		1468-0002	SW5T2	MO.5-32	IFM-32	Tone Compensation
19	2.2	300						IF Feedback Cer.
20	1.5	300						Ext. Antenna Coup. Cer.

* Parallel Sections to Obtain Desired Capacity.

CONTROLS

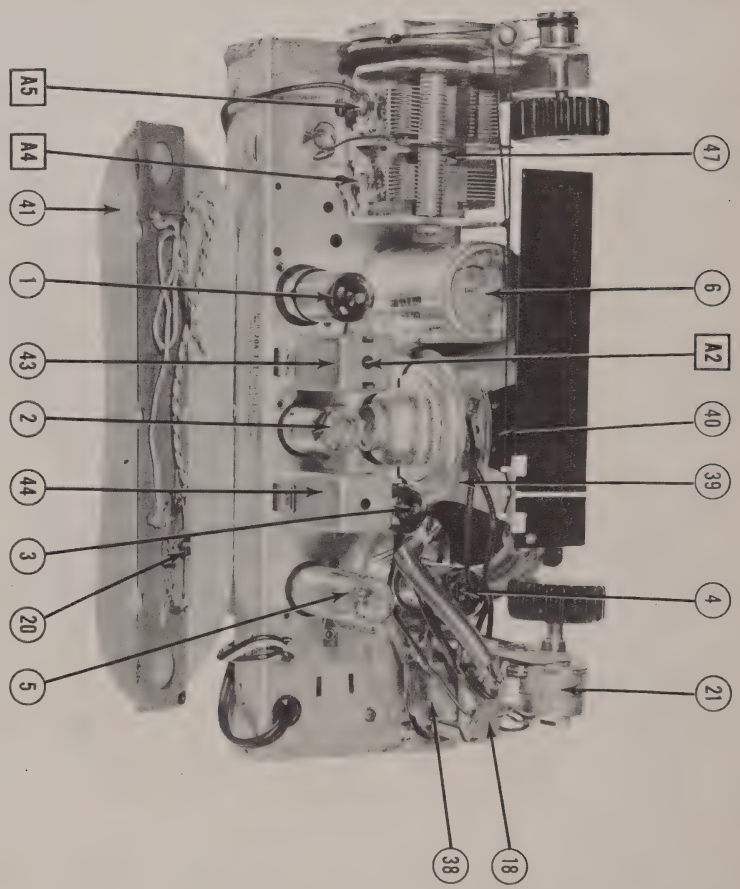
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21	1 Meg.	½	390963			Volume Control and Switch

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES	
22	100KΩ	½		BTS-100K	BR.-Blk.-Yl.	Oscillator Grid
23	15KΩ	½		BTS-15K	Br.-Grn.-Or.	Oscillator Anode Decoupling
24	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn.	IF Grid
25	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn.	AVC Net
26	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue	AF Grid
27	3.3 Meg	½		BTS-3.3 Meg.	Or.- Or.-Grn.	AF Screen
28	470KΩ	½		BTS-470K	Yl.-Vi.-Yl.	AF Plate load
29	1.5 Meg.	½		BTS-1.5 Meg.	Br.-Grn.-Grn.	Output Grid
30	68Ω	½		BW-½-68	Blue-Gray-Blk	Bias
31	680Ω	½		BTS-680	Blue-Gray-Br	Filament String
32	820Ω	½		BTS-820	Gray-Red-Br	Filament String
33	1500Ω	½		BTS-1500	Br.-Grn.-Red	Filament String
34A	1100Ω	10		ABA-2250		Filament dropping. See note.
B	1100Ω	10				" " "
35	1500Ω	½		BTS-1500	BR.-Grn.-Red	Filter
36	47Ω	1			Yl.-Vi.-Blk.	Surge Limiter
37	470KΩ	½		BTS-470K	Yl.-Vi.-Yl.	1st IF Transformer Sec. Shunt

Note. On IRC Replacement Set Slider in Middle.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		EMERSON PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
38	10KΩ	4.0Ω	430Ω	.4Ω	734039			A-2998#	# Cut mounting tabs to duplicate original.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			EMERSON PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.				
39	PM	4.0Ω	180052		5A07	
	CONE DIA.	VC DIA.				
40	4 3/4"	9/16"				

R F COILS

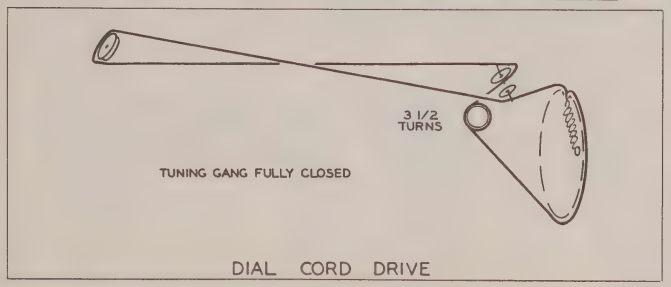
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	EMERSON PART No.	MEISSNER PART No.	
41	Loop Ant.		2.8Ω			
42	Osc. coil	1.8Ω	7Ω			
43	Input IF	21Ω	20.5Ω		16-6668	
44	Output IF	19Ω	18Ω			

BATTERIES

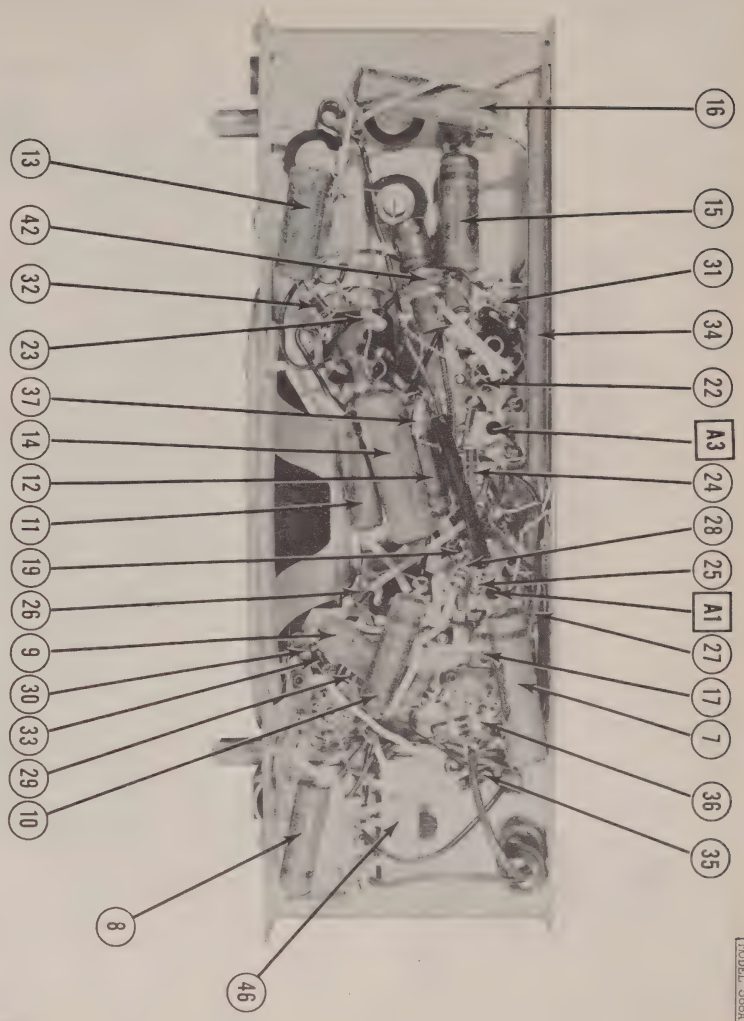
ITEM No.	VOLTAGE	EMERSON PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
45	7.5V "A" 90V "B"				753			F6A60	

MISCELLANEOUS

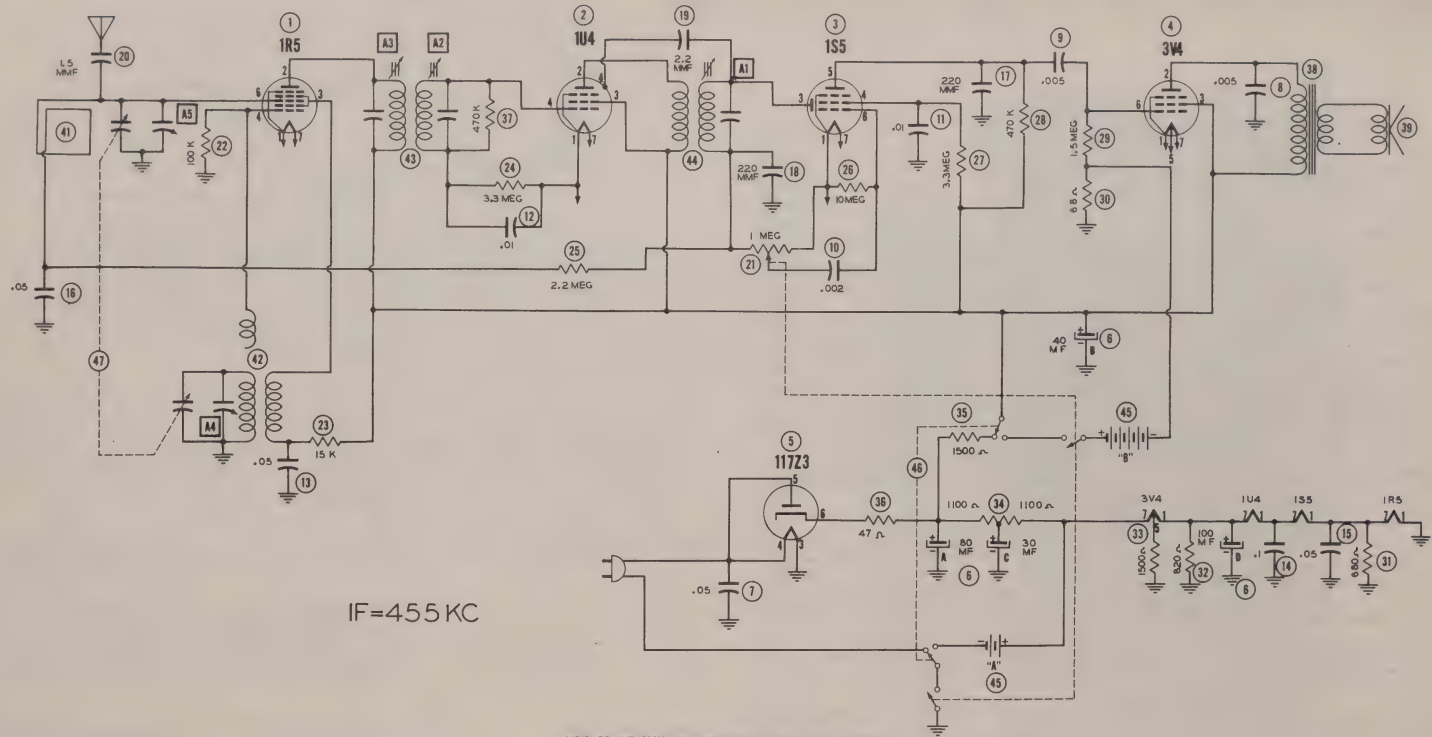
ITEM No.	PART NAME	EMERSON PART No.	NOTES
46	Switch		AC/DC-Battery
47	2 Gang Var.Cap.		(23-387MMF,28-172MMF)



CHASSIS—BOTTOM VIEW



EMERSON MODEL 568A



VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0V	95VDC	60VDC	§-12.5VDC	0V	.1VDC	1.4VDC
2	1U4	2.6VDC	95VDC	95VDC	0V	2.6VDC	.1VDC	4.1VDC
3	1S5	1.4VDC	1.4VDC	.2VDC	25VDC	35VDC	0V	2.6VDC
4	3V4	4.1VDC	90VDC	95VDC	0V	5.3VDC	0V	6.6VDC
5	117Z3	117VAC	115VDC	0V	117VAC	117VAC	118VDC	0V

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0Ω	4KΩ	19KΩ	100KΩ	0Ω	3.2 Meg.	*
2	1U4	*	4KΩ	4KΩ	INF	*	3.3 Meg.	*
3	1S5	*	1 Meg.	1 Meg.	3.3 Meg.	470KΩ	10 Meg.	*
4	3V4	*	4KΩ	4KΩ	68Ω	*	1.5 Meg.	*
5	117Z3	300Ω	2.5KΩ	0Ω	300Ω	300Ω	2.5KΩ	INF

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
+ Measured From Pin 6 of 117Z3

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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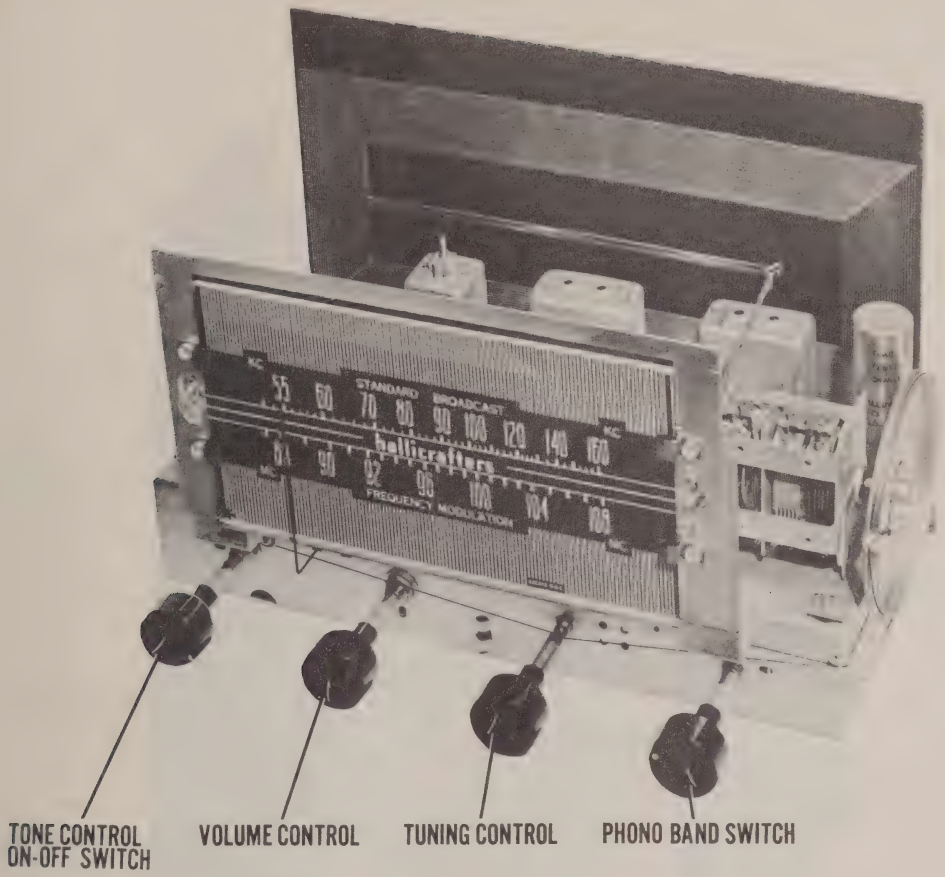
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volts.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.



HALLICRAFTERS
MODEL S-59

HALLICRAFTERS MODEL S-59

TRADE NAME	Hallicrafters, Model S-59
MANUFACTURER	Hallicrafters Co., 5th & Kostner Avenues, Chicago 24, Ill.
TYPE SET	AC Operated AM-FM Superheterodyne Receiver with Loop Antenna.
TUBES (EIGHT)	Types 6BE6 Converter, 6BA6 1st IF Amp., 6BA6 FM 2nd IF - AM Det.-AVC, 6AL5 FM Detector, 6SQ7 AF Amp., (2) 6K6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC.
RATING	.55 Amp. @ 117 Volts AC
TUNING RANGE—	BROADCAST 540-1600KC FREQUENCY MODULATION 88-108 MC

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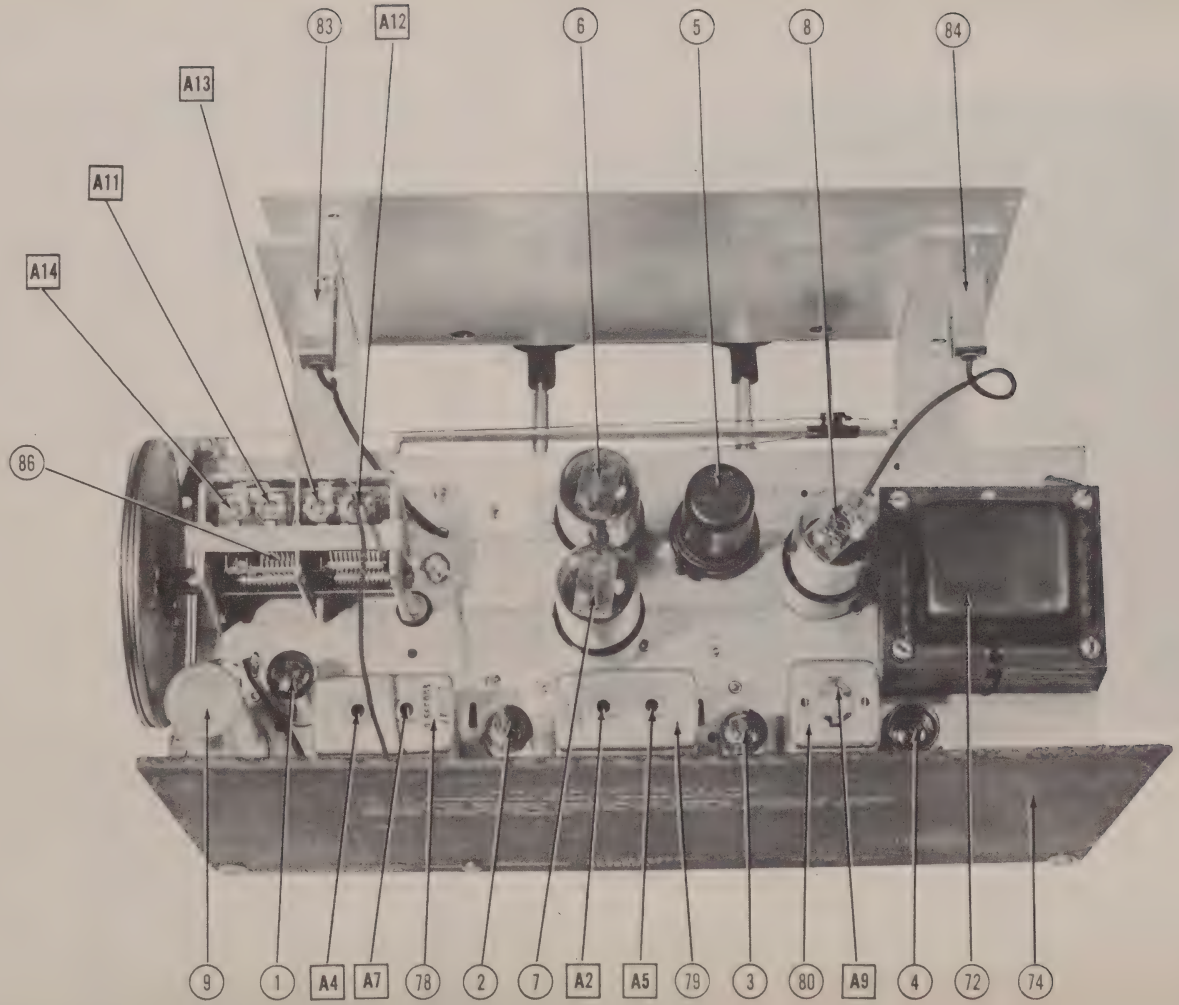
DATE 3/49 496-10 SET #58 FOLDER 10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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: HALLICRAFTERS PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6BE6	6BE6	7CH	
2	1st IF Amp.	6BA6	6BA6	7BK	
3	FM 2nd IF-AM Det-AVC	6BA6	6BA6	7BK	
4	FM Detector	6AL5	6AL5	6BT	
5	AF Amp.	6SQ7	6SQ7	8Q	
6	Power Output	6K6GT	6K6GT	7S	
7	Power Output	6K6GT	6K6GT	7S	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: HALLICRAFTERS PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	30	350	45B131	AF22J	UP1145	DY-2x10-450	EL-362	Filter ■ 30-350
B	10	350		PRS450/50	BR3045	K-30-450		Filter ▲ 10-350
C	10	350						Filter 10-350
10	10	25	45A121	PRS25/10	BR102A	M-10-25	TA-10	Cathode Bypass
11	10	25	45A121	PRS25/10	BR102A	M-10-25	TA-10	Stabilizing Cap.
12	.01	500	46A147	684-01	GT6S1	MPH-6-01	TC-11	Line Filter
13	.01	600	46A147	684-01	GT6S1	ST-6-01	TC-11	Audio Coupling
14	.01	600	46A147	684-01	GT6S1	ST-6-01	TC-11	Audio Coupling
15	.004	600	46AZ402J	684-004	GT6D4	ST-6-004	TC-24	Tone Comp.
16	.01	600	46A147	684-01	GT6S1	ST-6-01	TC-11	Tone Comp.
17	470	500	CM20A471M	1468-0005	5W5T5	MO.5-35	1FM-35	Tone Comp.
18	220	500	CM20A221M	1468-0002	5W5T2	MO.5-32	1FM-32	Tone Comp.
19	2000	500	47B20A202M5	1467-002	1W5D2	MO.5-22	1FM-22	Audio Coupling Cer.
20	470	500	CM20A471M	1468-0005	5W5T5	MO.5-35	1FM-35	Det. Diode Load Cap
21	2000	500	47B20A202M5	1467-002	1W5D2	MO.5-22	1FM-22	Deem Phasi Cer.
22	1000	500	47B20A102N5	1468-001	1W5D1	MO.5-21	1FM-21	Decoupling Cer.
23	5000	500	47A168	1467-005	1W5D5	MO.5-25	1FM-25	2nd IF Screen Bypass Cer.
24	5000	500	47A168	1467-005	1W5D5	MO.5-25	1FM-25	Cathode Bypass Cer.
25	100	500	CM20A151M	1468-0001	5W5T1	MO.5-31	1FM-31	RF Diode Filter
26	100	500	CM20A151M	1468-0001	5W5T1	MO.5-31	1FM-31	RF Diode Filter
27	5000	500	47A168	1467-005	1W5D5	MO.5-25	1FM-25	1st IF Screen Bypass Cer.
28	5000	500	47A168	1467-005	1W5D5	MO.5-25	1FM-25	Cathode Bypass Cer.
29	5000	500	47A168	1467-005	1W5D5	MO.5-25	1FM-25	AVC Filter Cer.
30	5000	500	47A168	1467-005	1W5D5	MO.5-25	1FM-25	Conv. Plate Decoupling Cer.
31	5000	500	47A168	1467-005	1W5D5	MO.5-25	1FM-25	Conv. Screen " Cer.
32	220	500	CM20A221M	1468-0002	5W5T2	MO.5-32	1FM-32	Conv. " Bypass Cer.
33	5	500	CC21UK100K	1469-000005	5R5V5	MOS.5-55	MS-55	Fixed Trimmer Cer.
34	51	500	CC21UK510J	1469-00005	5R5Q5	MOS.5-45	MS-45	Fixed Padder Cer.
35	47	500	CC21UK470K	1469-00005	5R5Q5	MOS.5-45	MS-45	Osc. Grid Cap. Cer.
36	100	500	47B20A101M5	1469-0001	2R5T1	MOS.5-31	MS-31	RF Coupling ± 2% Cer.
37	1000	500	47B20A102N5	1468-001	1W5D1	MO.5-21	1FM-21	Filament Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HALLICRAFTERS PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
38A	2 Meg.	½	25B624	D13-139	AM-66-Z	Volume Control
B	Shaft		Not Req.	E	Kss-3	Attach to 38A Per Instructions
39A	500KΩ	½	25B758	D13-133	AM-60-Z	Tone Control
B	Shaft		Not Req.	E	Kss-3	Attach to 39A Per Instructions
C	Switch		Not Req.	41	SW-A	Attach to 39A Per Instructions

PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: HALLICRAFTERS PART No.	INSTALLATION NOTES
83	Bayonet	6-8V	0.25A	Blue	39A003	Type #44
84	Bayonet	6-8V	0.25A	blue	39A003	Type #44

MISCELLANEOUS

ITEM No.	PART NAME	HALLICRAFTERS PART No.	NOTES
85	Switch	60B328	Band-Phono
86	2 Gang Var. Cap.	48C203	(30-477MMF, 36-202MMF)
	Dial Pointer	32B152	
	Dial Scale	22C212	Glass
	Dial Glass	22B205	Clear
	Knob	15B067-2	Tuning or Volume
	Knob	15B143	Tone or Band

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	HALLICRAFTERS PART No.	IRC PART No.	
40	10Ω	½	RC20AE100K		Br.-Blk.-Blk. Parasitic Supp. See Note
41	10Ω	½	RC20AE100K		Br.-Blk.-Blk. Parasitic Supp.
42	10Ω	½	RC20AE100K		Br.-Blk.-Blk. Parasitic Supp.
43	10Ω	½	RC20AE100K		Br.-Blk.-Blk. Parasitic Supp.
44	2.2 Meg.	½	RC20AE225M	BTS-2.2 Meg.	Red-Red-Grn. Conv. Grid
45	15KΩ	½	RC20AE153M	BTS-15K	Br.-Grn.Or. Conv. Plate Decoup.
46	6800Ω	½	RC20AE682K	BTS-6800	Blue-Gray-Red Conv. Screen Decoup.
47	22KΩ	½	RC20AE223K	BTS-22K	Red-Red-Or. Osc. Grid
48	27Ω	½	RC20AE270K		Red-Vi.-Blk. 1st IF Cathode
49	68Ω	½	RC20AE680K		Blue-Gray-Blk. 1st IF Cathode
50	4700Ω	1	RC30AE472M	BTA-4700	Yl.-Vi.-Red 1st IF Decoup.
51	1 Meg.	½	RC20AE105M	BTS-1 Meg.	Br.-Blk.-Grn. AVC Net.
52	47KΩ	½	RC20AE473K	BTS-47K	Yl.-Vi.-Or. Diode Filter
53	330KΩ	½	RC20AE334K	BTS-330K	Or.-Or.-Yl. Diode Load
54	12Ω	½	RC20AE120K		Br.-Red-Blk. 2nd IF Cathode
55	68Ω	½	RC20AE680K		Blue-Gray-Blk. 2nd IF Cathode
56	4700Ω	1	RC30AE472M	BTA-4700	Yl.-Vi.-Red 2nd IF Decoup.
57	47KΩ	½	RC20AE473K	BTS-47K	Yl.-Vi.-Or. De-Emphassis
58	47KΩ	½	RC20AE473K	BTS-47K	Yl.-Vi.-Or. Tone Comp.
59	6800Ω	½	RC20AE682K	BTS-6800	Blue-Gray-Red Ratio Det. Diode Load
60	6800Ω	½	RC20AE682K	BTS-6800	Blue-Gray-Red Ratio Det. Diode Load
61	470KΩ	½	RC20AE474M	BTS-470K	Yl -Vi.-Yl. Phono Shunt
62	47KΩ	½	RC20AE473K	BTS-47K	Yl.-Vi.-Or. Series Phono
63	47KΩ	½	RC20AE473K	BTS-47K	Yl.-Vi.-Or. Tone Comp.
64	5.6 Meg.	½	RC20AE565M	BTS-5.6 Meg.	Grn.-Blue-Grn. AF Grid
65	470KΩ	½	RC20AE474M	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
66	470KΩ	½	RC20AE474M	BTS-470K	Yl.-Vi.-Yl. Output Grid
67	330Ω	2	RC40AE331K	BW-2-330	Or.-Or.-Br. Output Cathode
68	6800Ω	½	RC20AE682K	BTS-6800	Blue-Gray-Red Output Screen
69	1500Ω	2	RC40AE152M	BT-2-1500	Br.-Grn.-Red Voltage Dropping
70	820Ω	2	RC40AE821K	BT-2-820	Gray-Red-Br. Filter
71	820Ω	2	RC40AE821K	BT-2-820	Gray-Red-Br. Filter

Note: Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	HALLICRAFTERS PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
72A	117 VAC @ .55A	550VCT .07ADC	5.0VAC @ 2.0A	6.3VAC @ 2.65A	52C171	P-6011#	T22R02	P-2951#
72B					52C166			

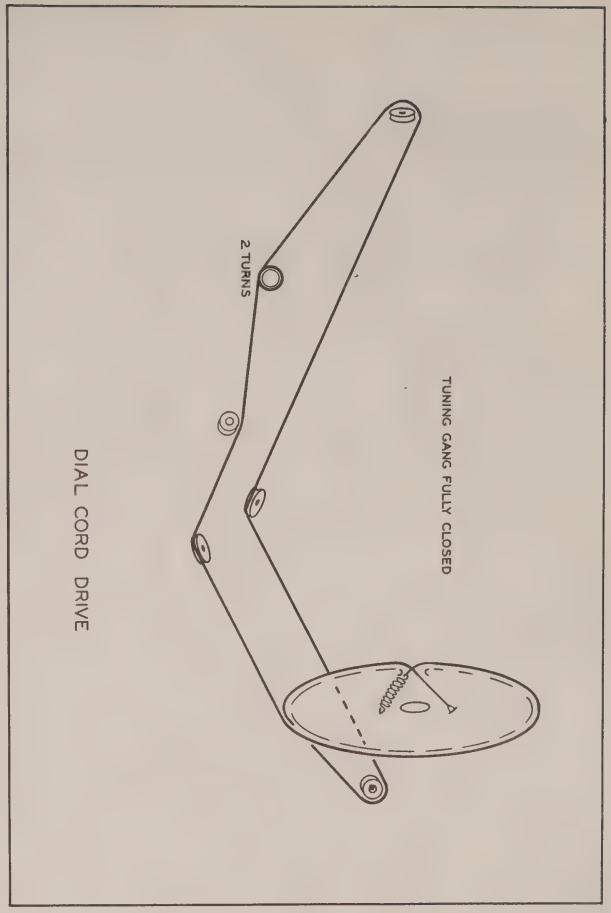
Add series res. to reduce plate voltage.

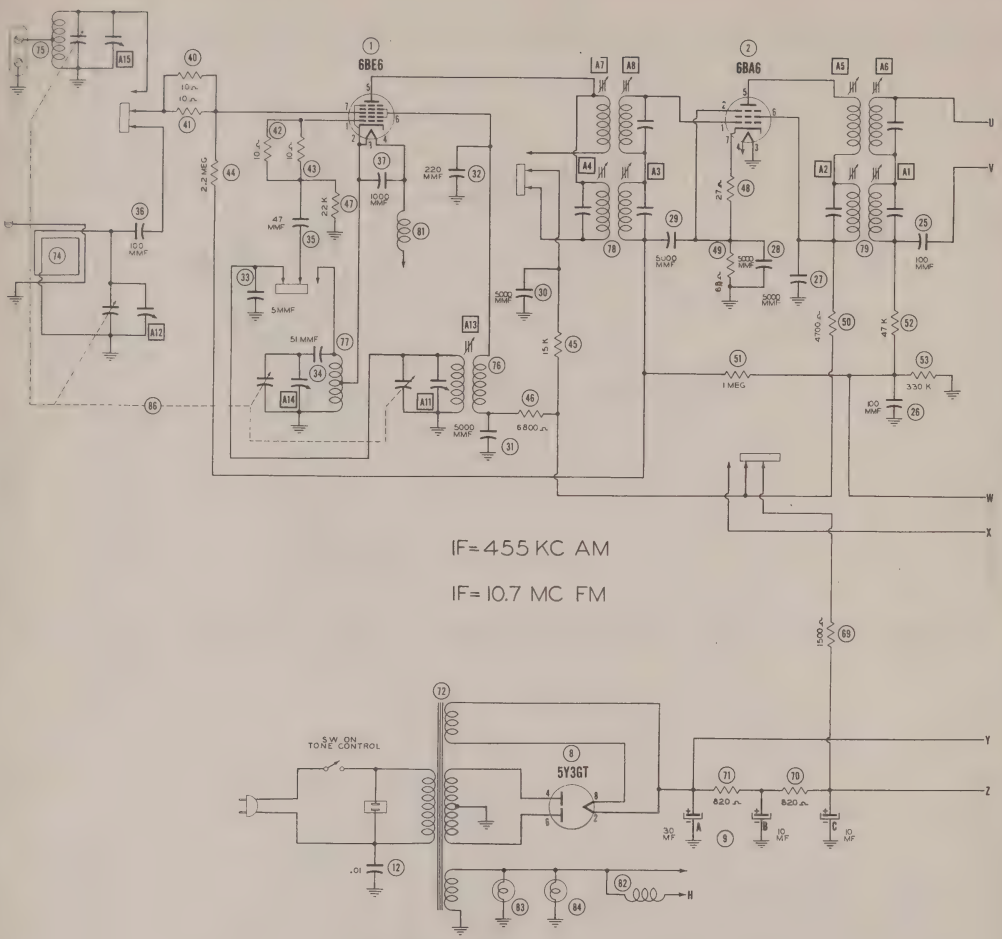
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		HALLICRAFTERS PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
73	20KΩ CT	500Ω	595Ω CT	19.5Ω	55B112-1				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	HALLICRAFTERS PART No.	MEISSNER PART No.	
74	AM Loop Ant.		2.5Ω	57C123		
75	FM Ant. Coil		0Ω	51A1060		
76	AM Osc. Coil	1Ω	7Ω	51B1063		
77	FM Osc. Coil		0Ω	51A1062		
78A	AM 1st IF	12Ω	12Ω	50B399		
	FM 1st IF	.8Ω	.5Ω	50B399		
79A	AM 2nd IF	8.5Ω	9Ω	50B400		
	FM 2nd IF	1Ω	.5Ω	50B400		
80	Ratio Det.	1.5Ω	0Ω	50B401		
81	Filament Chk		0Ω	53A136		
82	Filament Chk		0Ω	53A136		





VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.
VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1A	6BE6	5-12VDC	0V	0V	6.3VAC	125VDC	125VDC	-.2VDC	
1a	6BE6	5-2VDC	0V	0V	6.4VAC	65VDC	100VDC	0V	
2	6BA6	-.1VDC	.9VDC	0V	6.2VAC	125VDC	125VDC	1.0VDC	
3A	6BA6	0V	.9VDC	0V	6.3VAC	105VDC	100VDC	1VDC	
3a	6BA6	-.8VDC	0V	0V	6.3VAC	0V	0V	0V	
4	6BE6	-.1VDC	0V	0V	6.3VAC	1VDC	0V	-.2VDC	
5	5Y3GT	0V	-.6VDC	0V	0V	0V	85VDC	6.3VAC	0V
6	6BQ6GT	0V	0V	265VDC	225VDC	0V	0V	6.3VAC	14.5VDC
7	6BQ6GT	0V	0V	265VDC	2.0VDC	0V	160VDC	6.3VAC	14.5VDC
8	6V6GT	0V	-7.2V	0V	275VAC	0V	275VAC	0V	270VDC

STAKEN WITH VACUUM TUBE VOLTMETER.
VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

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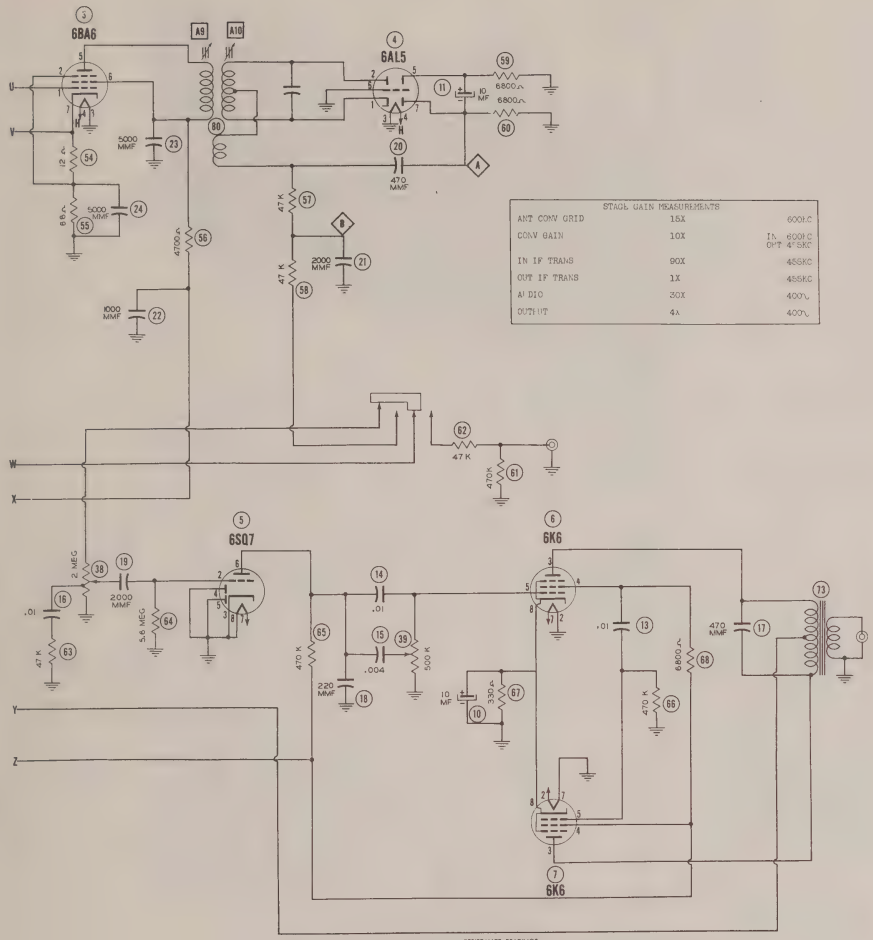

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	20K	0Ω	0Ω	12	500Ω	500Ω	2.5 Meg.	
2	6BA6	320Ω	0Ω	0Ω	11V	250V	500Ω	0Ω	
3	6AL5	1.3 Meg.	68Ω	0Ω	11	360Ω	90Ω	100Ω	
4	6AL5	310KΩ	65V	0Ω	12	140KΩ	100KΩ	40Ω	
5	6AL5	290KΩ	65V	0Ω	12	0Ω	0Ω	0Ω	
4	6AL5	2.1 Meg.	2.1 Meg.	0Ω	12	6.8KΩ	0Ω	6.5 Meg.	
5	6SQ7	0Ω	5.6 Meg.	0Ω	0Ω	0Ω	270KΩ	12	0Ω
6	6K6GT	0Ω	0Ω	500KΩ	500KΩ	500KΩ	Inf.	12	330Ω
7	6K6GT	0Ω	0Ω	500KΩ	500KΩ	470KΩ	500KΩ	12	330Ω
8	6Y5GT	Inf.	50KΩ	Inf.	155Ω	Inf.	165Ω	Inf.	500KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully clockwise and set pointer to last reference mark at low frequency end of dial.

AM IF ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.002	High side to large AM stator of tuning Cap. Low side to chassis.	455KC	AM (Center position)	1000KC	Across Voice Coil	A1,A2 A3,A4	Adjust for maximum output

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

To find the center IF frequency detune signal generator on either side of 10.7 MC noting signal generator frequency when VTVM indicates ½ of maximum voltage. Attenuate output of signal generator to obtain a maximum VTVM reading of 2 volts. Set signal generator frequency to mid-point of two readings.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
2.	.01MFD	High side to small FM stator of tuning cap. Low side to chassis.	10.7MC (Unmodulated)	FM (fully counter-clockwise)	100MC	DC Probe in series with 500KΩ resistor to point (A) Common to chassis	A5,A6 A7,A8	Adjust for maximum deflection. Find center IF frequency per Prealignment instructions and use this setting for steps 3 and 4.
3.	.01MFD	"	Center IF freq.	"	"	DC Probe in series with 500KΩ resistor to point (A) Common to chassis	A9	Adjust for maximum deflection.
4.	.01MFD	"	"	"	"	DC Probe in series with 500KΩ resistor to point (B) Common to chassis	A10	Adjust for Zero deflection. Continue with AM RF Alignment in step 5.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulation signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
2.	.01MFD	High side to pin 1 (Grid) of 6BA6 1st IF tube (2). Low side to chassis.	10.7MC (freq.mod)	FM	100MC	Vertical input to point (A) Ground to chassis.	A5,A6 A9	Disconnect 10MFD cap (11) from point A. Adjust A5, A6 &A9 for maximum amplitude, symmetry and coincidence of pattern per Fig. 1.
3.	.01MFD	High side to small FM stator of tuning cap. Low side to chassis.	"	"	"	"	A7,A8	Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig. 1. Reconnect cap (11) to point A.
4.	.01MFD	"	"	"	"	Vertical input to point (B) Ground to chassis.	A10	Adjust for crossover of diagonal lines ocurring at scope horizontal sweep line per Fig. 2. Continue with AM RF Alignment in step 5.

AM RF ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

Standard RMA dummy ant. consists of a 200MMFD cap, in series with a 20 microhenry RF choke, the choke being shunted by a 400MMFD cap, in series with a 400Ω carbon resistor.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
5.	RMA dummy (See alignment Instructions)	High side to left Ant. terminal. Low side to chassis.	1500KC	AM	1500KC	Across Voice Coil	A11	Adjust for maximum output.
6.	RMA dummy (See alignment Instructions)	"	"	"	Tune for maximum output	"	A12	" " " "
7.	RMA dummy (See alignment Instructions)	"	600KC	"	Tune for maximum output	"	A13	Rock tuning cap and adjust for maximum output. Repeat steps 5, 6 & 7 until no further improvement can be made.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	300Ω carbon resistor	High side to ungrounded dipole terminal. Low side to chassis.	108MC (Unmodulated)	FM	108MC	DC Probe in series with 500KΩ resistor to point (A) Common to chassis	A14	Adjust for maximum deflection.
9.	300Ω carbon resistor	"	"	"	Tune for maximum deflection.	"	A15	Rock tuning cap and adjust for maximum deflection.

FIG. 1

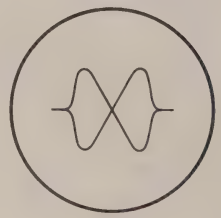
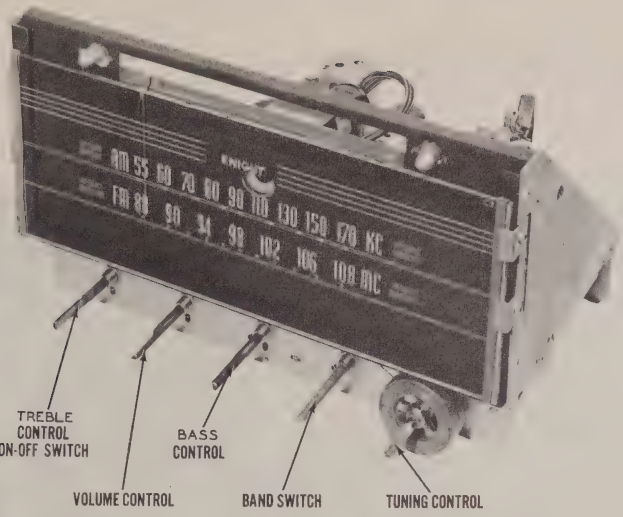
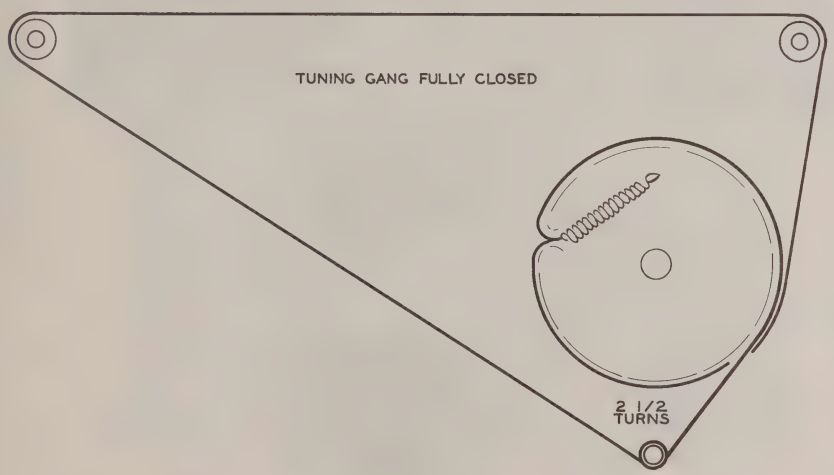


FIG. 2



Model 19F497

TRADE NAME	Knight, Models 19F492, 19F497, 19F498
SUPPLIER	Allied Radio Corp., 833 West Jackson Blvd., Chicago 7, Illinois
TYPE SET	AC Operated AM-FM Superheterodyne Receiver with Loop Antenna
TUBES(NINETEEN)	Types 6BA6 FM RF Amp., 6BA6 AM RF Amp., 6C4 FM Osc., 6BE6 FM Mixer, 6BE6 AM Converter, 6SG7 1st IF Amp., 6SH7 FM 2nd IF Amp., 6AL5 FM Det., 6J5 AM-DET-AVC, 6SQ7 AF Amp., 6U5/6G5 Tuning Indicator, 6J5 AF Amp., 6J5 Phase Inverter (4) 6V6GT Power Output, (2) 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC
RATING	1.25 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	535-1720KC
FREQ. MOD.	88-108MC



DIAL CORD DRIVE

KNIGHT
MODELS 19F492, 19F497, 19F498

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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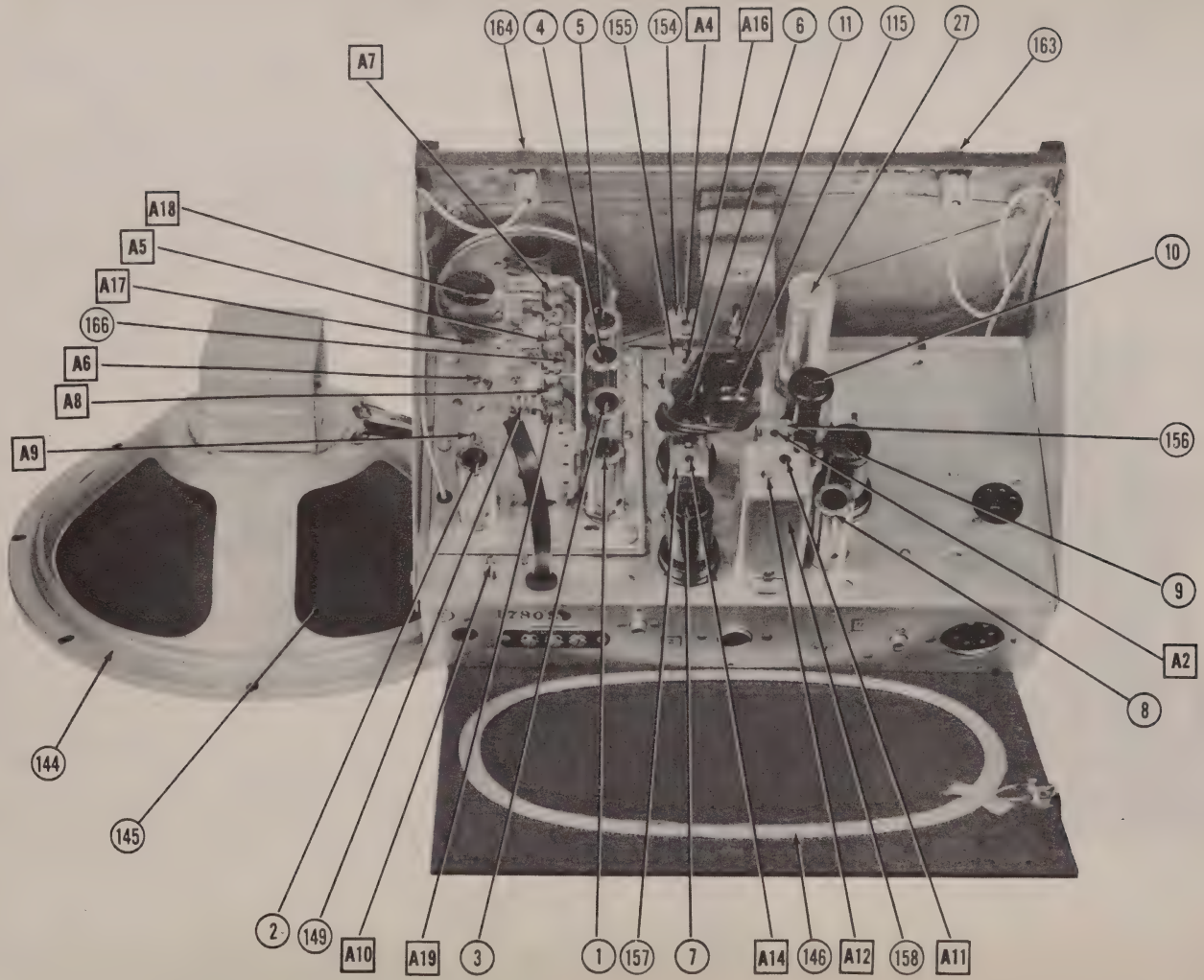
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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: KNIGHT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	FM RF Amp.	6BA6	6BA6	7BK	
2	AM RF Amp.	6BA6	6BA6	7BK	
3	FM Osc.	6C4	6C4	6BQ	
4	FM Mixer	6BE6	6BE6	7CH	
5	AM Converter	6BE6	6BE6	7CH	
6	1st IF Amp.	6SG7	6SG7	8BK	
7	FM 2nd IF Amp.	6SH7	6SH7	8BK	
8	FM Detector	6AL5	6AL5	6BT	
9	AM Det.-AVC	6J5	6J5	6Q	
10	AF Amp.	6SQ7	6SQ7	8Q	
11	Tuning Ind.	6U5/6G5	6U5/6G5	6R	
12	AF Amp.	6J5	6J5	6Q	
13	Phase Inverter	6J5	6J5	6Q	
14	Power Output	6V6GT	6V6GT	7AC	
15	Power Output	6V6GT	6V6GT	7AC	
16	Power Output	6V6GT	6V6GT	7AC	
17	Power Output	6V6GT	6V6GT	7AC	
18	Rectifier	5Y3GT	5Y3GT	5T	
19	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: KNIGHT PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
20A	40	450	C13.806	AF88J	UP4445	DY-2X40-450	EL-240	▰ Filter.
20B	40	450						▲ "
21A	40	450	C13.806	AF88J	UP4445	DY-2X40-450	EL-240	▰ "
21B	40	450						▲ "
22	25	25		PRS 25/25	BR 252A	M-25-25	TA-25	Cathode Bypass.
23	25	25		PRS 25/25	BR 252A	M-25-25	TA-25	" "
24	25	25		PRS 25/25	BR 252A	M-25-25	TA-25	" "
25	5	250	N25.206	PRS 250/4	BR 425	M-4-450	UT-42	Stabilizing Cap.
26	8	450		PRS 450/8	BR 845	M-8-450	UT-8	Decoupling. See note. 2
27A	20	450	N25.225	AF44J	UP2245	DY-2X20-450	EL-220	▲ Decoupling.
27B	20	450						▲ "
28	.05	400			484-05	GT4S5	MPH-4-05	TC-15 Line Filter.
29	.05	400			484-05	GT4S5	MPH-4-05	TC-15 " "
30	.002	1200			1684-002	GT16D2	STM-16-002	TR-22 Tone Compensation.
31	.002	1200			1684-002	GT16D2	STM-16-002	TR-22 " "
32	.05	400			484-05	GT4S5	ST-4-05	TC-15 Audio Coupling.
33	.05	400			484-05	GT4S5	ST-4-05	TC-15 " "
34	.01	600			684-01	GT6S1	ST-6-01	TC-11 " "
35	.05	200			484-05	GT2S5	ST-4-05	TC-15 " "
36	.005	400			454-005	GT6D5	ST-6-005	TC-25 Tone Compensation.
37	.02	200			484-02	GT2S2	ST-4-02	TC-12 " "
38	.05	200			484-05	GT2S5	ST-4-05	TC-15 Audio Coupling.
39	.05	400			484-05	GT4S5	ST-4-05	TC-15 RF Bypass Power Sup.
40	.5	200			484-5	GT2P5	ST-2-5	TC-5 Bias Filter.
41	.05	200			484-05	GT2S5	ST-4-05	TC-15 AVC Filter.
42	.05	400			484-05	GT4S5	ST-4-05	TC-15 Conv. Screen Bypass.
43	.05	400			484-05	GT4S5	ST-4-05	TC-15 RF " "
44	.02	200			484-02	GT2S2	ST-4-02	TC-12 Cathode Bypass.
45	250	500			1468-00025	5W5T25	MO.5-325	1FM-325 Tone Compensation.
46	250	500			1468-00025	5W5T25	MO.5-325	1FM-325 1st AF Plate Bypass.
47	2000	300			1467-002	1W5D2	MW.5-22	1FM-22 AVC Filter. Cer.
48	250	500			1468-00025	5W5T25	MO.5-325	1FM-325 FM Det. Diode Load Cap
49	3000	300			1467-003	1W5D3	MW.5-23	1FM-23 De-emphasis. Cer.
50	2000	300			1467-002	1W5D2	MW.5-22	1FM-22 RF Bypass Power Sup. Cer.
51	2000	300			1467-002	1W5D2	MW.5-22	1FM-22 2nd IF Plate Decoup. Cer.
52	5000	300			1467-005	1D5D5	MW.5-25	1FM-25 " " Screen Bypass. Cer.
53	5000	300			1467-005	1D5D5	MW.5-25	1FM-25 " " Cathode Bypass Cer.
54	2000	300			1467-002	1W5D2	MW.5-22	1FM-22 2nd IF Grid Filter. Cer.

PARTS LIST AND DESCRIPTIONS (Continued)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: KNIGHT PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
98	1000Ω	½		BTS-1000	Br.-Blk.-Red. FM Mixer Plate Decoupling.
99	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Net.
100	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. " "
101	2000Ω	½		BTS-2200	Red-Blk.-Red. 1st IF Decoupling.
102	68Ω	½			Blue-Gray-Blk. " " Cathode.
103	50KΩ	½		BTS-47K	Diode Filter. See note.
104	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. " Load.
105	220KΩ	½		BTS-220K	Red-Red-Yl. 2nd IF Grid.
106	68Ω	2			Blue-Gray-Blk. " " Cathode.
107	22KΩ	1		BTA-22K	Red-Red-Or. " " Screen.
108	1000Ω	½		BTS-1000	Br.-Blk.-Red. " " Plate Decoupling.
109	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AVC Network.
110	220KΩ	½		BTS-220K	Red-Red-Yl. " "
111	22KΩ	½		BTS-22K	Red-Red-Or. De-emphasis.
112	10KΩ	½		BTS-10K	Br.-Blk.-Or. Ratio Detector Diode Load.
113	10KΩ	½		BTS-10K	Br.-Blk.-Or. " " " "
114	10KΩ	½		BTS-10K	Br.-Blk.-Or. Tone Compensation.
115	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Tuning Indicator Plate Load.
116	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue. 1st AF Grid.
117	220KΩ	½		BTS-220K	Red-Red-Yl. " " Plate Load.
118	47KΩ	½		BTS-47K	Yl.-Vi.-Or. " " " Decoupling.
119	220KΩ	½		BTS-270K	Red-Blue-Yl. Bias Network.
120	10KΩ	½		BTS-10K	Br.-Blk.-Or. " "
121	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. " "
122	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 2nd AF Grid.
123	4700Ω	½		BTS-4700	Yl.-Vi.-Red. " " "
124	10Ω	½		BW-½-10	Br.-Blk.-Blk. 2nd AF Cathode.
125	220KΩ	½		BTS-220K	Red-Red-Yl. " " Plate Load.
126	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Phase Inverter Grid.
127	4700Ω	½		BTS-4700	Yl.-Vi.-Red. " " Cathode.
128	220KΩ	½		BTS-220K	Red-Red-Yl. " " Plate Load.
129	150KΩ	½		BTS-150K	Br.-Blue-Yl. Output Grid.
130	220KΩ	½		BTS-220K	Red-Red-Yl. " "
131	130Ω	5	N14.089		" Cathode.
132	39Ω	½		BW-½-39	Or.-White-Blk. Parasitic Suppressor.
133	39Ω	½		BW-½-39	Or.-White-Blk. " "
134	39Ω	½		BW-½-39	Or.-White-Blk. " "
135	39Ω	2		BW-1-39	Or.-White-Blk. " "
136	4000Ω	10		AB-4000	Tone Compensation.
137	4000Ω	10		AB-4000	" "
138	100Ω	½		BW-½-100	Br.-Blk.-Br. Feed back.
139	2200Ω	0.5		DG-2250	Screen Dropping.
140	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Decoupling.
141	1000Ω	14		DG-1000	Filter.

Note: Items 103,55A & B are combined into one unit.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: KNIGHT PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	REPLACEMENT DATA: MERIT PART No.
142	117 VAC @ 1.25A	570 VCT .19 ADC	5.0 VAC @ 4.0A	6.4VAC 5.55A	B18.077	P-6165 * #		P-2955 *

#Drill new mounting holes
*Add series resistor to reduce plate voltage.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: KNIGHT PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
143	5000Ω CT	500Ω 250Ω 15Ω 8Ω 4Ω	360Ω CT	21.5Ω 13.6Ω 1.28Ω .9Ω .6Ω	B15.037	A-3800 #	T22S70 #	A-3131	# Drill new mounting holes.

PARTS LIST AND DESCRIPTIONS (Continued)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA KNIGHT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
55A	100	300		1468-0001	5W5T1	MO.5-31	1FM-31	RF Diode Filter. Cer. See note 1.
55B	100	300		1468-0001	5W5T1	MO.5-31	1FM-31	RF Diode Filter. Cer. See note 1.
56	10000	300		1467-01	1D3S1	MW.3-11	1FM-11	1st IF Screen Bypass Cer.
57	10000	300		1467-01	1D3S1	MW.3-11	1FM-11	1st IF Cathode Bypass. Cer.
58	2000	300		1467-002	1W5D2	MW.5-22	1FM-22	RF Bypass Power Sup. Cer.
59	2000	300		1467-002	1W5D2	MW.5-22	1FM-22	Conv. Plate Decoup. Cer.
60	100	500		1468-0001	5W5T1	MO.5-31	1FM-31	Osc. Grid Cap.
61	15	500				MS-415		Fixed Trimmer. Cer.
62	5	500		1469-000005	5R5V5	MOS.5-55	MS-55	" " Cer.
63	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	Mixer Screen Bypass Cer.
64	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	" Cathode Bypass Cer.
65	2	300						Mixer Grid Cap. Cer.
66	100	300		1468-0001	5W5T1	MO.5-31	1FM-31	RF Bypass. Cer. See Note 2
67	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	RF Bypass. Cer.
68	20	300	N25.220		5R5Q2	MOS.5-42	MS-42	Osc. Feedback. Cer.
69	40	500		1468-00004	5W5Q4	MO.5-44	1FM-44	Osc. Grid Cap. Cer.
70	40	500		1468-00004	5W5Q4	MO.5-44	1FM-44	RF Coupling. Cer.
71A	1500	300	N25.211	1467-0015	1W5D15	MW.5-215	1FM-215	RF Screen Bypass. Cer.
71B	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	Cathode Bypass. Cer.
71C	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	RF Bypass Power Supply. Cer.
72	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	RF Coupling Cer.
73	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	AVC Filter. Cer.
74	500	300		1468-0005	5W5T5	MO.5-35	1FM-35	RF Coupling. Cer.
75	500	300		1468-0005	5W5T5	MO.5-35	1FM-35	Filament Bypass. Cer.
76	5000	300		1467-005	1D5D5	MW.5-25	1FM-25	" " Cer.
77	500	300		1468-0005	5W5T5	MO.5-35	1FM-35	" " See Note 2
78	500	300		1468-0005	5W5T5	MO.5-35	1FM-35	" " Cer.
79	500	300		1468-0005	5W5T5	MO.5-35	1FM-35	" " Cer.

Note 1. Items 55A, 55B and 103 are combined into one unit.
Note 2. Not used in all models.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA KNIGHT PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
80A	500KΩ	½	A9.127	D13-133X	T-78	Volume Control tapped @ 100KΩ.
80B	Shaft		Not req.	A	Not req.	Attach to 80A per instructions.
81A	1 Meg.	½	A9.129	D11-137	M-61-S	Bass Control.
81B	Shaft		Not req.	A	Not req.	Attach to 81A per instructions.
82A	1 Meg.	½	A9.128	D13-137	M-63-2	Treble Control.
82B	Shaft		Not req.	A	Not req.	Attach to 82A per instructions.
82C	Switch		" "	41	SW-A	" " "

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA KNIGHT PART No.	IRC PART No.	IDENTIFICATION CODES	
83	1000Ω	½		BTS-1000	Br.-Blk.-Red.	Antenna Loading.
84	470KΩ	½		BTS-470K	Yl.-Vi.-Yl.	AM RF Grid.
85	100Ω	½			Br.-Blk.-Br.	" " Cathode.
86	22KΩ	½		BTS-22K	Red-Red-Or.	" " Screen.
87	150Ω	½			Br.-Grn.-Br.	Parasitic Suppressor.
88	22KΩ	½		BTS-22K	Red-Red-Or.	AM Oscillator Grid.
89	15KΩ	2		BT-2-15K	Br.-Grn.-Or.	" Converter Screen.
90	470KΩ	½		BTS-470K	Yl.-Vi.-Yl.	FM RF Grid.
91	68Ω	½			Blue-Gray-Blk.	" " Cathode.
92	22KΩ	½		BTS-22K	Red-Red-Or.	" " Screen.
93	22KΩ	½		BTS-22K	Red-Red-Or.	" Mixer Injector Grid.
94	150Ω	½			Br.-Grn.-Br.	" Cathode.
95	15KΩ	2		BT-2-15K	Br.-Grn.-Or.	" Screen.
96	47KΩ	½		BTS-47K	Yl.-Vi.-Or.	" Oscillator Grid.
97	1000Ω	½		BTS-1000	Br.-Blk.-Red.	" " Plate Decoup.

DATE 3/49 496-11 SET #58 FOLDER #11

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA KNIGHT PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
144	FIELD	V.C. IMP.	N11.072	ST-102 MOD.P12-S	12A6	
	PM	7.5Ω				
145	CONE DIA. 11 1/2"	V.C. DIA. 1 1/4				

R F COILS

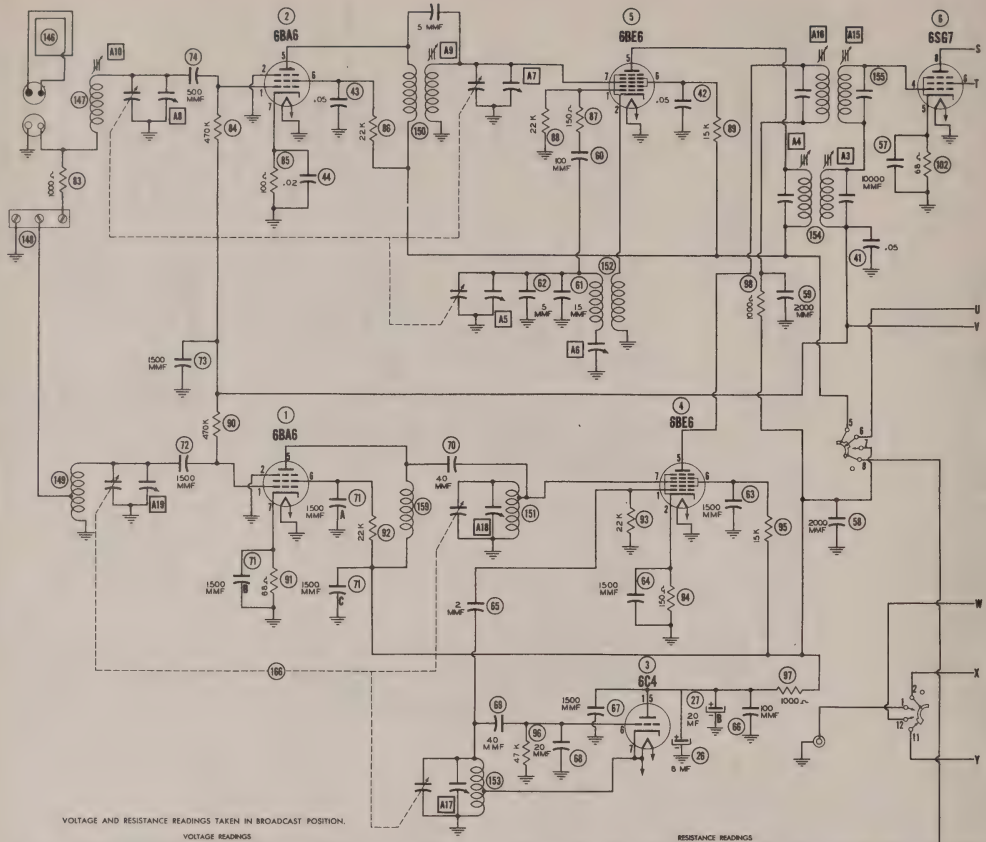
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA KNIGHT PART No.	MEISSNER PART No.	
146	AM Loop Ant.		.8Ω	C5.027		
147	AM Ant.Load Coil.		2Ω	B2.423		
148	FM Dipole Ant.		0Ω	A5.010		
149	FM Ant.Coil		0Ω	N2.411		
150	AM RF Coil	90Ω	3.4Ω	B2.409		
151	FM RF Coil		0Ω	N2.412		
152	AM Osc.Coil	3Ω	7Ω	A2.410	14-1060	
153	FM Osc.Coil		0Ω	N2.413		
154	AM 1st IF	10Ω	10Ω	N2.414	16-6678	
155	FM 1st IF	1Ω	1Ω	N2.415		
156	AM 2nd IF	10Ω	10Ω	N2.414	16-6678	
157	FM 2nd IF	1Ω	1Ω	N2.415		
158	Ratio Det.	1Ω	.5Ω	C2.278		
159	RF Plate chk		1.5Ω	A2.402		
160	Fil. Choke		.5Ω	N2.416		
161	Fil.Choke		.5Ω	N2.416		
162	Fil.Choke		.5Ω	N2.439		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA KNIGHT PART No.		INSTALLATION NOTES
163	Bayonet	6-8V	0.15A	Brown			Type # 47
164	"	6-8V	0.15A	"			" 47

MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
165	Switch	A12.102	Band
166	3 Gang Var.Cap.	B6.070	(40-537 MMF, 40-533MMF, 24-517 MMF)
A6	Padder	C13518	BC Osc. Adjustment.
A17	Trimmer	N20.022	FM Osc. Adjustment.
A18	Trimmer	N20.022	FM RF Adjustment.



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	-1.1VDC	0V	6.4VAC	0V	220VDC	125VDC	1.1VDC	
2	6BA6	-.4VDC	0V	0V	6.4VAC	245VDC	125VDC	1.1VDC	
3	6C4	205VDC	0V	6.4VAC	0V	205VDC	5-4.7VDC	0V	
4	6BE6	-1.1VDC	0V	6.4VAC	0V	220VDC	90VDC	0V	
5	6BE6	3-8.8VDC	0V	6.4VAC	0V	245VDC	115VDC	0V	
6	6SQ7	0V	0V	.7VDC	-.5VDC	.7VDC	235VDC	6.4VAC	210VDC
7	6SH7	0V	0V	1VDC	-.1VDC	1VDC	130VDC	6.4VAC	210VDC
8	6AL5	1.4VDC	1.1VDC	0V	6.4VAC	1.3VDC	0V	1.3VDC	
9	6J5	0V	0V	0V	0V	-2VDC	0V	6.4VAC	0V
10	6B47	0V	-.4VDC	0V	-.3VDC	-.3VDC	90VDC	6.4VAC	0V
11	6U5/6G5								
12	6J6	0V	0V	60VDC	187VDC	0V	0V	6.4VAC	2.7VDC
13	6J6	0V	0V	60VDC	187VDC	0V	0V	6.4VAC	2.8VDC
14	6V6GT	0V	0V	280VDC	275VDC	0V	0V	6.4VAC	17VDC
15	6V6GT	0V	0V	280VDC	275VDC	0V	0V	6.4VAC	17VDC
16	6V6GT	0V	0V	280VDC	275VDC	0V	0V	6.4VAC	17VDC
17	6V6GT	0V	0V	280VDC	275VDC	0V	0V	6.4VAC	17VDC
18	5Y3GT	0V	280VDC	0V	285VAC	0V	285VAC	0V	280VDC
19	5Y3GT	0V	280VDC	0V	285VAC	0V	285VAC	0V	280VDC

TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	1 Meg.	0Ω	.1Ω	0Ω	51KΩ	73KΩ	68Ω	
2	6BA6	3.5 Meg.	0Ω	0Ω	.1Ω	51KΩ	73KΩ	100Ω	
3	6C4	52KΩ	Inf.	.1Ω	0Ω	52KΩ	47KΩ	0Ω	
4	6BE6	82KΩ	0Ω	.1Ω	0Ω	52KΩ	66KΩ	0Ω	
5	6BE6	22KΩ	1Ω	1Ω	0Ω	51KΩ	66KΩ	66KΩ	
6	6SQ7	0Ω	0Ω	68Ω	3 Meg.	68Ω	53KΩ	1Ω	53KΩ
7	6SH7	0Ω	0Ω	68Ω	220KΩ	68Ω	73KΩ	1Ω	53KΩ
8	6AL5	440KΩ	440KΩ	0Ω	1Ω	Inf.	0Ω	Inf.	
9	6J5	0Ω	0Ω	0Ω	Inf.	500KΩ	Inf.	1Ω	0Ω
10	6B47	0Ω	10 Meg.	0Ω	580KΩ	580KΩ	100KΩ	1Ω	0Ω
11	6U5/6G5								
12	6J6	0Ω	0Ω	320KΩ	100KΩ	470KΩ	0Ω	.1Ω	4.7KΩ
13	6J6	Inf.	0Ω	320KΩ	100KΩ	47KΩ	Inf.	.1Ω	4.7KΩ
14	6V6GT	0Ω	0Ω	50KΩ	52KΩ	210KΩ	210KΩ	1Ω	130Ω
15	6V6GT	0Ω	0Ω	50KΩ	52KΩ	210KΩ	210KΩ	1Ω	130Ω
16	6V6GT	0Ω	0Ω	50KΩ	52KΩ	210KΩ	210KΩ	1Ω	130Ω
17	6V6GT	0Ω	0Ω	50KΩ	52KΩ	270KΩ	270KΩ	1Ω	130Ω
18	5Y3GT	0Ω	50KΩ	Inf.	30Ω	Inf.	30Ω	Inf.	50KΩ
19	5Y3GT	0Ω	50KΩ	Inf.	28Ω	Inf.	28Ω	1-2	50KΩ

9 VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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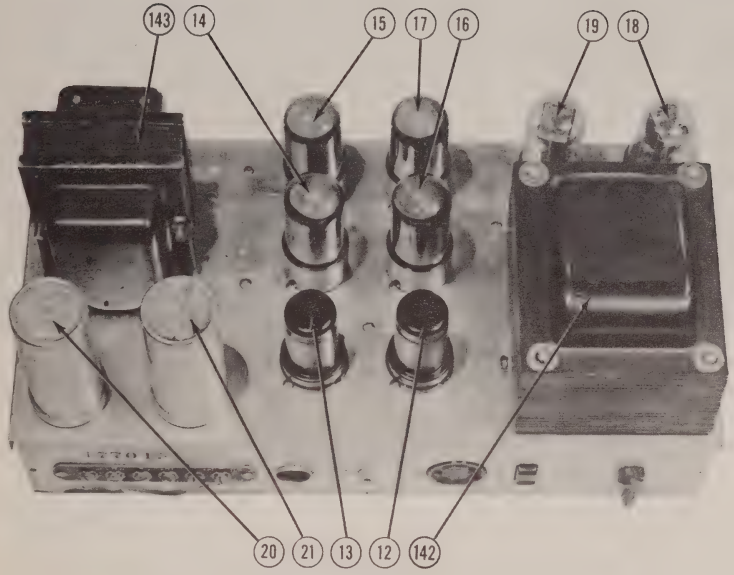
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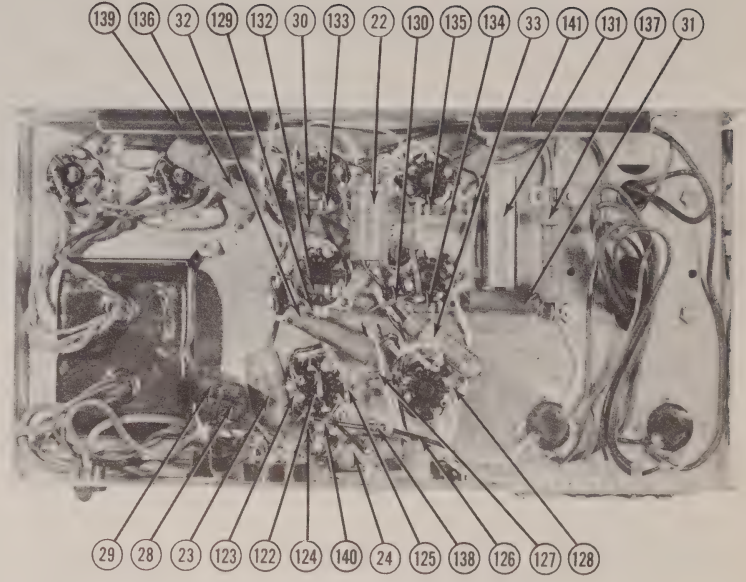
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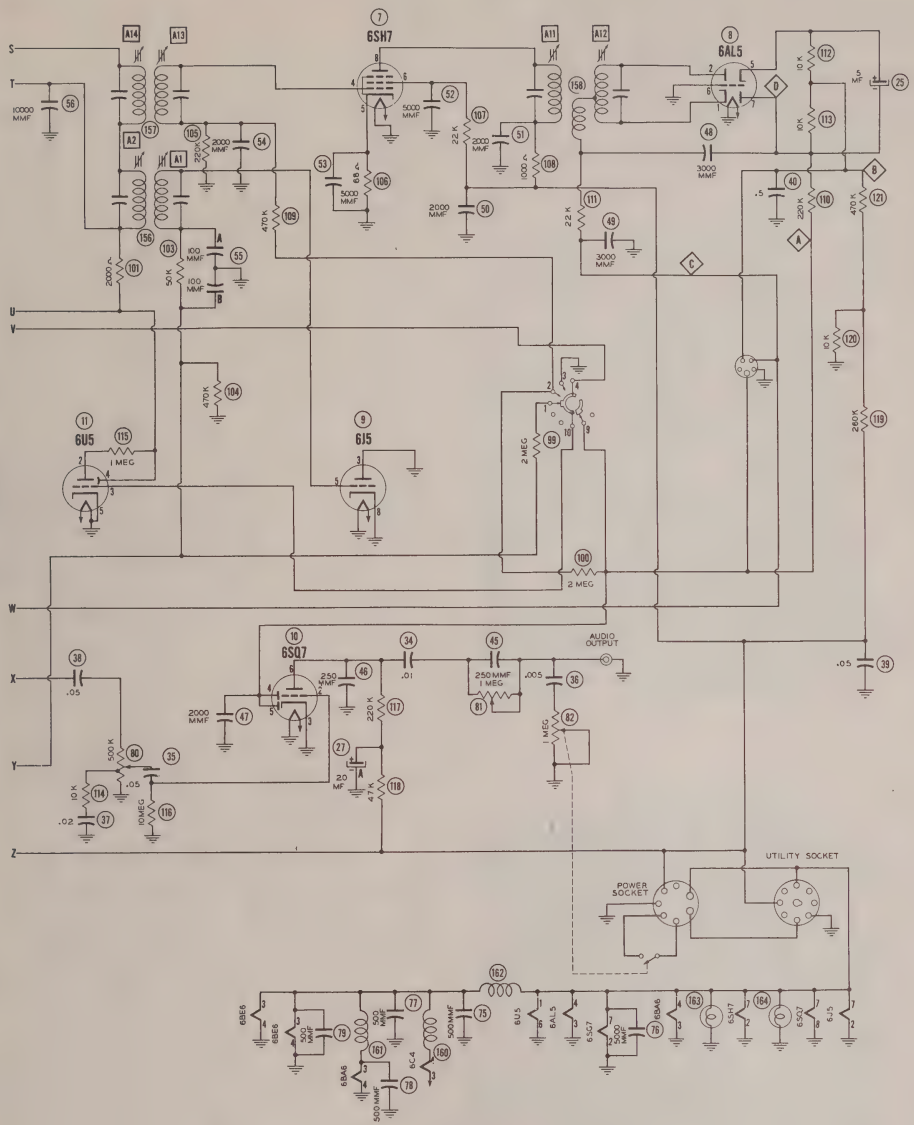

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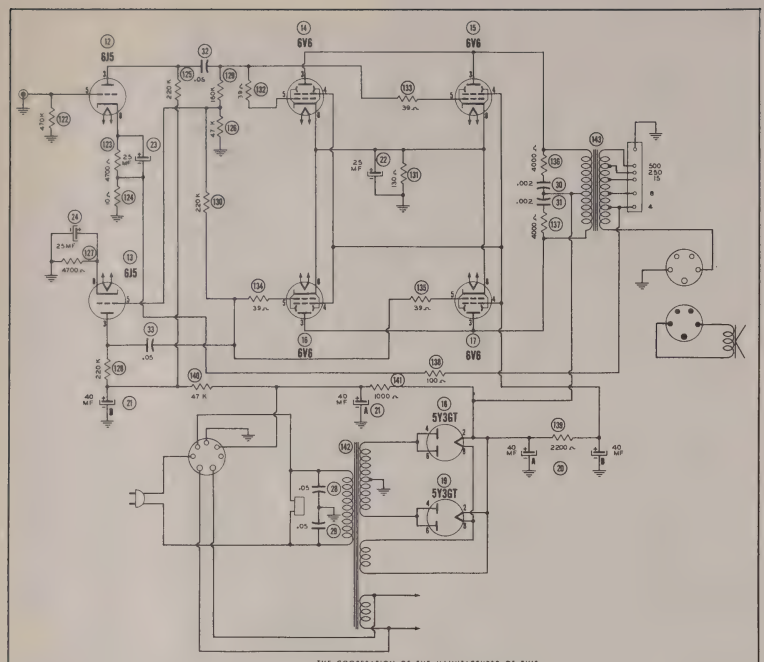


STAGE GAIN MEASUREMENTS

RF GRID–CONV GRID	80X	600KC
CONV GAIN	15X	IN 600KC OUT 455KC
IN IF TRANS	.6X	455KC
IF TUBE	180X	455KC
OUT IF TRANS	.6X	455KC
AUDIO	40X	400∿
AUDIO	10X	400∿
OUTPUT	20X	400∿

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low frequency end of dial.

Attenuate output of signal generator to maintain output meter reading of .5 watt.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.05MFD	High side to pin 4(Grid) of 6SG7. Low side to chassis.	455KC	AM (Clockwise).	Tuning cap. fully open.	Across voice coil	A1,A2	Adjust for maximum output.
2	.05MFD	High side to front AM stator of tuning cap. Low side to chassis.	455KC	"	"	"	A3,A4	Adjust for maximum output.
3	50MMFD	High side to external AM ant. terminal. Low side to chassis.	1720KC	"	"	"	A5	Adjust for maximum output.
4	50MMFD	"	535KC	"	Tuning cap. fully closed.	"	A6	Adjust for maximum output. Repeat steps 3 and 4.
5	50MMFD	"	1500KC	"	Tune for maximum output.	"	A7,A8	Adjust for maximum output.
6	50MMFD	"	600KC	"	"	"	A9,A10	Adjust for maximum output. Repeat steps 5 & 6 until no further improvement can be made.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR VTVM AND OUTPUT METER

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7	.01MFD	High side to pin 4(Grid) of 6SH7. Low side to chassis.	10.7 MC (Unmod.)	FM	Tuning cap. fully open.	D.C.Probe to point A. Common to point B.	A11	Adjust for maximum deflection.
8	.01MFD	"	10.7 MC (Unmod.)	"	"	D.C.Probe to point A. Common to point B.	A12	Adjust for zero deflection. Tune signal generator above and below 10.7 MC and note reading on VTVM. If these two readings are not equal, adjust A11 until they are equal.
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
9	.01MFD	High side to pin 4(Grid) of 6SG7. Low side to chassis.	10.7 MC (400 mod. @ 30%)	FM	Tuning cap. fully open.	Across voice coil	A13, A14	Solder a 1000Ω carbon resistor across primary of ratio detector transformer(158). Adjust A13 & A14 for maximum output.
10	.01MFD	High side to front FM stator cap. Low side to chassis.	10.7 MC (400 mod. @ 30%).	"	"	"	A15, A16	Adjust for maximum output. Remove 1000Ω shunting resistor. Continue with FM-RF alignment in step 11.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

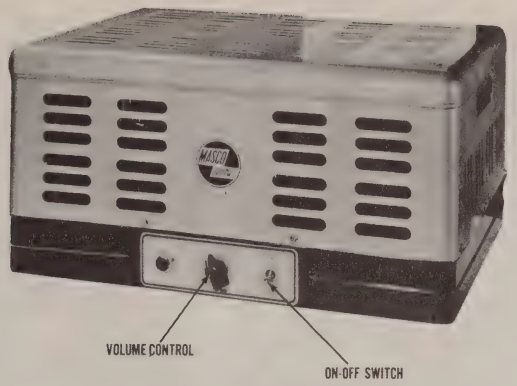
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
7	.01MFD	High side to pin 4(Grid) of 6SG7. Low side to chassis.	10.7 MC (Freq.Mod)	FM	Tuning cap. fully open.	Vertical input to point D. Ground to chassis.	A11,A13 A14	Disconnect 5MFD cap. (25) from point D. Adjust A11, A13 & A14 for maximum amplitude, symmetry and coincidence of pattern per Fig. 1.
8	.01MFD	High side to pin 7(Grid) of 6BE6 FM mixer(4). Low side to chassis.	10.7 MC (Freq.Mod.)	"	"	"	A15,A16	Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig.1.
9	.01MFD	"	10.7 MC (Freq.Mod.)	"	"	Vertical input to point D. Ground to chassis.	A12	Adjust for crossover of diagonal lines occurring at scope horizontal sweepline per Fig.2. Continue with FM-RF alignment in step 11.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
11	270Ω Carbon resistor	High side to FM ant. terminal "A2". Low side to chassis.	108.5 MC (Unmod.)	FM	Tuning cap. fully open.	D.C.Probe to point A. Common to point B.	A17	Adjust for maximum deflection.
12	270Ω Carbon resistor	"	87.5 MC (Unmod.)	"	Tuning cap. fully closed.	"	FM Osc. coil. (153)	Expand or compress coil slightly for maximum deflection. Repeat steps 11 & 12 until no further improvement can be made.
13	270Ω Carbon resistor	"	108 MC (Unmod.)	"	Tune for maximum deflection.	"	A18,A19	Rock tuning cap. and adjust for maximum deflection.
14	270Ω Carbon resistor	"	88 MC (Unmod.)	"	"	"	FM RF coil (151) & FM ant. coil (149).	Expand or compress coil slightly for maximum deflection. Repeat steps 13 & 14 until no further improvement can be made.

FIG.1

FIG. 2



MASCO MODEL MB-50N

TRADE NAME	Masco, Model MB-50N
MANUFACTURER	Mark Simpson Mfg. Co., Inc., 32-28 49th St., Long Island City 3, N. Y.
TYPE SET	AC Operated Audio Amplifier
TUBES (EIGHT)	Types 6SN7GT AF-Phase Inv., 6SN7GT Driver, (4) 6L6G Power Output, (2) 5V4G Rectifier.
POWER SUPPLY RATING	110-125 Volts AC 1.41 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SN7GT	0V	65VDC	2.5VDC	0V	75VDC	3VDC	20VDC*	20VDC*
2	6SN7GT	0V	112VDC	4.2VDC	0V	110VDC	4.2VDC	20VDC*	20VDC*
3	6L6G	0V	20VDC*	330VDC	300VDC	0V	0V	20VDC*	20VDC
4	6L6G	0V	20VDC*	330VDC	300VDC	0V	0V	20VDC*	20VDC
5	6L6G	0V	20VDC*	330VDC	300VDC	0V	0V	20VDC*	20VDC
6	6L6G	0V	20VDC*	330VDC	300VDC	0V	0V	20VDC*	20VDC
7	5V4G	0V	340VDC	0V	295VAC	0V	295VAC	0V	340VDC
8	5V4G	0V	340VDC	0V	295VAC	0V	295VAC	0V	340VDC

* 6.4VAC Between Filament Pins.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SN7GT	15KΩ	100KΩ*	2200Ω	600KΩ	65KΩ*	2200Ω	100Ω	100Ω
2	6SN7GT	100KΩ	65KΩ*	1000Ω	115KΩ	55KΩ*	1000Ω	100Ω	100Ω
3	6L6G	0Ω	100Ω	65Ω*	2500Ω*	100KΩ	100KΩ	100Ω	100Ω
4	6L6G	0Ω	100Ω	65Ω*	2500Ω*	100KΩ	100KΩ	100Ω	100Ω
5	6L6G	0Ω	100Ω	65Ω*	2500Ω*	100KΩ	100KΩ	100Ω	100Ω
6	6L6G	0Ω	100Ω	65Ω*	2500Ω*	100KΩ	100KΩ	100Ω	100Ω
7	5V4G	INF	90KΩ	INF	22Ω	INF	23Ω	INF	90KΩ
8	5V4G	INF	90KΩ	INF	22Ω	INF	23Ω	INF	90KΩ

* Measured From Pin 8 - 5V4G

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

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DATE 3/49-#496-12 SET #58-FOLDER #12

MASCO
MODEL MB-50N

PARTS LIST AND DESCRIPTIONS

MASCO MODEL MB-50N

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MASCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.-Phase Inv	6SN7GT	6SN7GT	8BD	
2	Driver	6SN7GT	6SN7GT	8BD	
3	Power Output	6L6G	6L6G	7AC	
4	Power Output	6L6G	6L6G	7AC	
5	Power Output	6L6G	6L6G	7AC	
6	Power Output	6L6G	6L6G	7AC	
7	Rectifier	5V4G	5V4G	5L	
8	Rectifier	5V4G	5V4G	5L	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MASCO PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9	16	500		GL 600/16	KR616	D-16-600	AP-16	Filter
10A	8	450		PRSA 450/8-8	EDL 8845	M-2x8-450	UT-88	"
10B	8	450						Decoupling
11	8	450		PRS 450/8	BR845	M-8-450	UT-8	"
12	50	50		PRS 50/50	BR505	M-50-50	TA-550	Output Cathode Bypass
13	.1	600		684-1	GT6P1	ST-6-1	TC-1	Audio Coupling
14	.1	600		684-1	GT6P1	ST-6-1	TC-1	" "
15	.05	600		684-05	GT6S5	ST-6-05	TC-15	" "
16	.05	600		684-05	GT6S5	ST-6-05	TC-15	" "
17	.1	600		684-1	GT6P1	ST-6-1	TC-1	" "
18	500	500		1468-0005	5W5T5	MO.5-35	IFM-35	Driver Plate Bypass

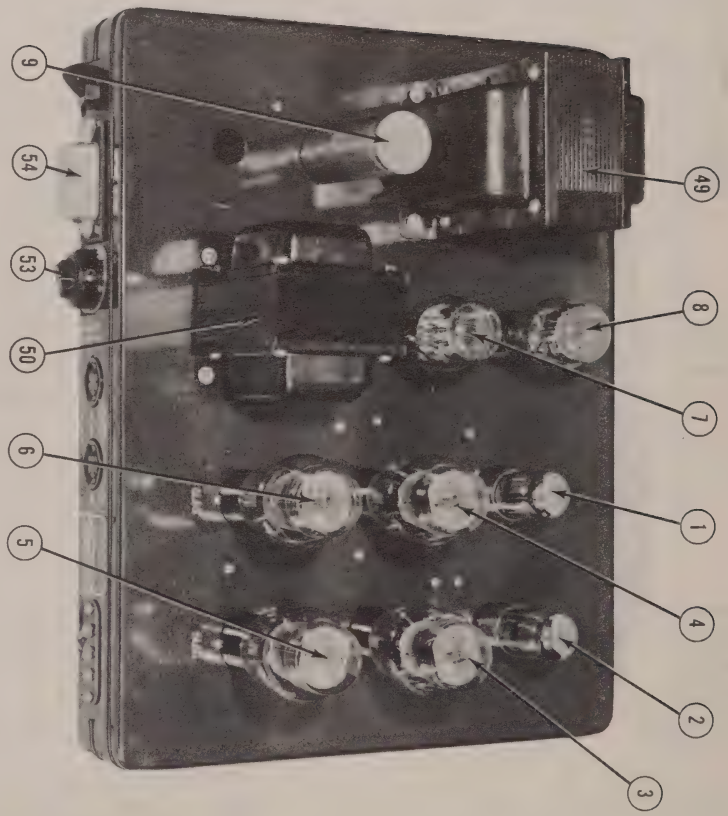
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
19(A)	500KΩ	½		D13-133	M-60-Z	Volume control
(B)	Shaft			A	Not Req.	Attach to 19A per instructions.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
20	270Ω	½		BW-½-270	Red-Vi.-Br. Balancing
21	270Ω	½		BW-½-270	Red-Vi.-Br. Balancing
22	2200Ω	½		BTS-2200	Red-Red-Red 1st AF Cathode
23	47KΩ	½		BTS-47K	Yl.-Vi.-Or. 1st AF Plate load
24	100KΩ	½		BTS-100K	Br.-Blk.-Yl Feedback
25	2200Ω	½		BTS-2200	Red-Red-Red. Phase Inv. Cathode
26	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Phase Inv. Plate Load
27	15KΩ	½		BTS-15K	Br.-Grn.-Or. Phase Inv. Grid
28	1000Ω	½		BTS-1000	Br.-Blk.-Red. Driver Cathode
29	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Driver Grid
30	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Driver Grid
31	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Driver Plate Load
32	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Driver Plate Load
33	270Ω	½		BW-½-270	Red-Vi.-Br. Output Grid
34	270Ω	½		BW-½-270	Red-Vi.-Br. Output Grid
35	270Ω	½		BW-½-270	Red-Vi.-Br. Output Grid
36	270Ω	½		BW-½-270	Red-Vi.-Br. Output Grid
37	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Output Grid
38	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Output Grid
39	200Ω	10		AB-200	Output Cathode
40	200Ω	10		AB-200	Output Cathode
41	270KΩ	½		BTS-270K	Red-Vi.-Yl. Feedback
42	18Ω	½		BW-½-18	Br.-Gray-Blk. Parasitic Suppressor.
43	18Ω	½		BW-½-18	Br.-Gray-Blk. " "
44	18Ω	½		BW-½-18	Br.-Gray-Blk. " "
45	18Ω	½		BW-½-18	Br.-Gray-Blk. " "
46	2500Ω	10		AB-2500	Filter
47	12KΩ	½		BTS-12K	Br.-Red-Or. "
48	47KΩ	½		BTS-47K	Yl.-Vi.-Or. "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
49	125 VAC Tap@117 VAC @ 1.41 A	650V AC C.T. .235A DC	5V AC @ 4A	6.4V AC @ 4.8A	P-50	P-6315 *‡#	T22R34	P-3156 ‡

* Mount vertically with universal mounting brackets.
‡ Add series resistor to reduce plate voltage.
# Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MASCO PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
50	3500Ω CT	4Ω 8Ω 15Ω 125Ω 250Ω 500Ω	100Ω CT	.4 .5 .6 13 18.5 26.5	T-50	A-3802#	T22S78#	A-3129	#Drill new mounting holes.

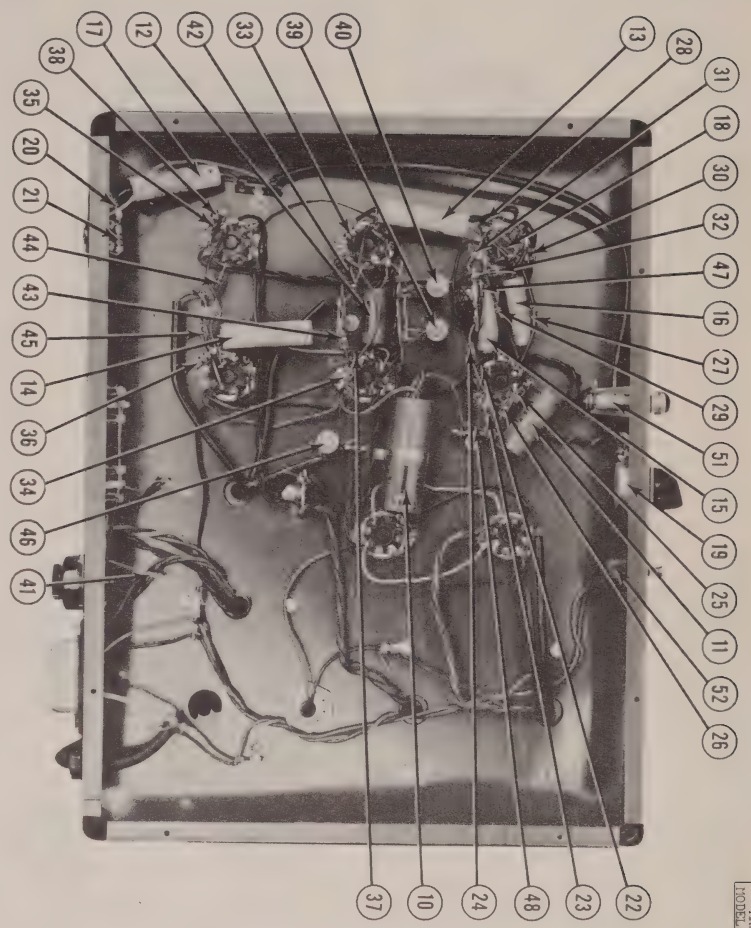
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MASCO PART No.		
51	Bayonet	6-8V	0.15A	Brown			Type #47

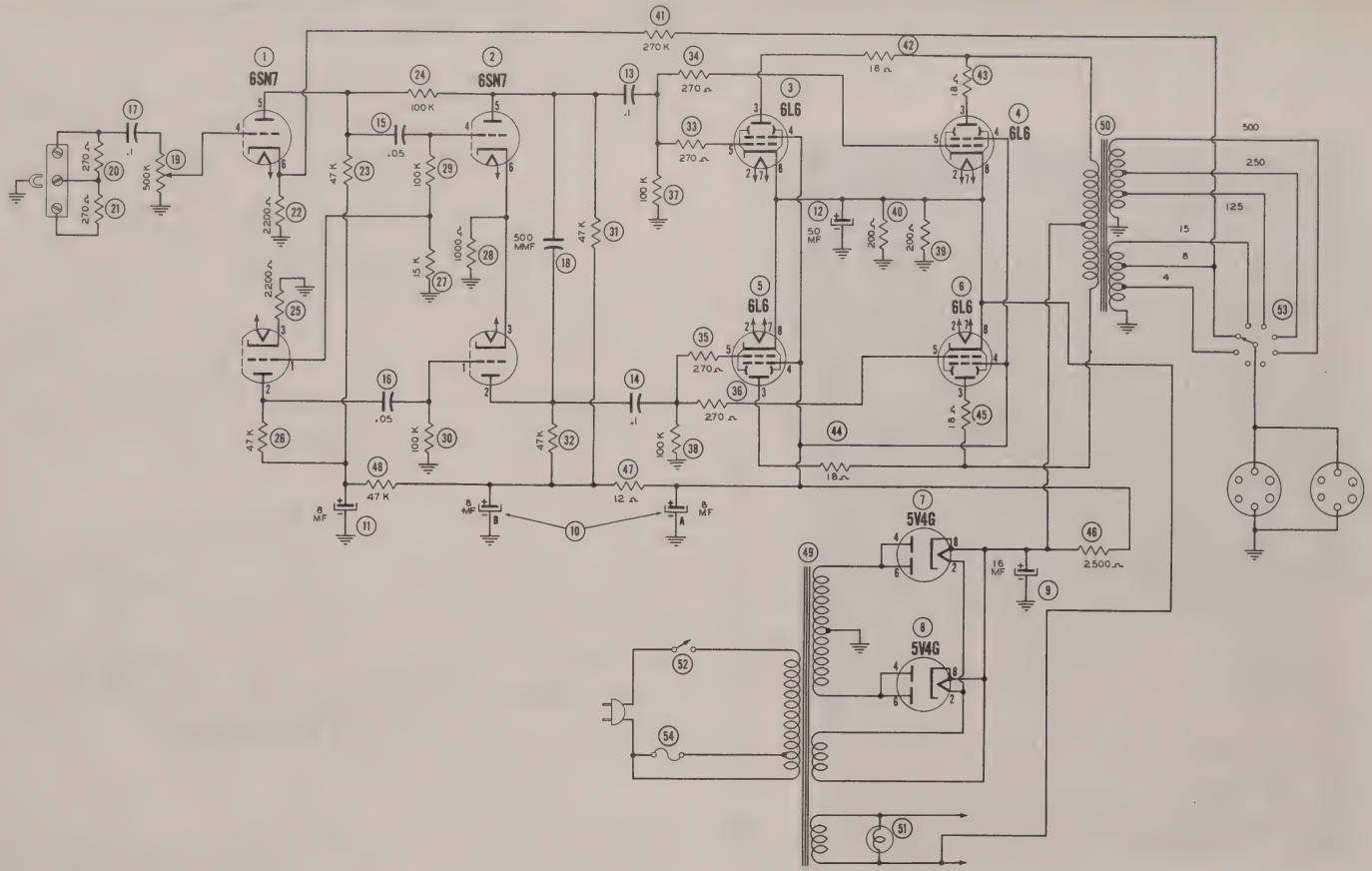
MISCELLANEOUS

ITEM No.	PART NAME	MASCO PART No.	NOTES
52	Switch		On-Off
53	"		Output selector
54	Fuse		3 Amp.

CHASSIS—BOTTOM VIEW



DATE 3/49-#496-12 SET #58-FOLDER #12
MASCO MODEL MB-50N
MASCO MODEL MB-50N



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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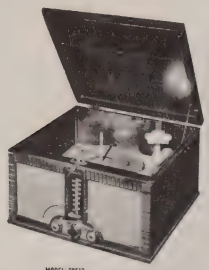
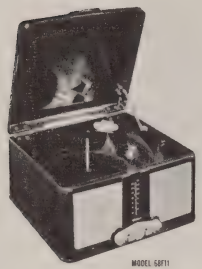
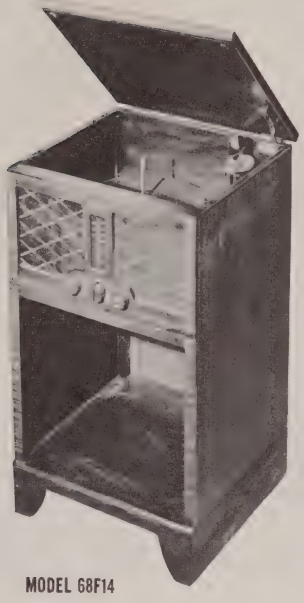
MOTOROLA
MODELS 68F11, 68F12, 68F14, 68F14B, 68F14M



MODEL 68F12



MODEL 68F11



MODEL 68F14

MOTOROLA MODEL 68F12

TRADE NAME	Motorola, Models 68F11, 68F12, 68F14, 68F14B, 68F14M (Ch. HS-124)
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago 51, Illinois.
TYPE SET	AC Operated Combination Phono-Radio, Superheterodyne Receiver with Loop Antenna.
TUBES (SIX)	Types 12AU6 Mixer, 6C4 Oscillator, 12BA6 IF Amp., 6AQ6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY RATING	105-125 Volts AC .23 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD. cap. in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume controls should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD	High side to pin 1 (Grid) of 12AU6. Low side to B-.	455KC	Tuning Cap. fully open.	Across Voice Coil	A1, A2 A3, A4	Adjust for maximum output. If Isolation transformer is not used reduce dummy antenna to .001 MFD to reduce hum modulation.
2	.1 MFD	"	1620KC	"	"	A5	Adjust for maximum output. The trimmer opposite A5 is a factory adjustment and ordinarily need not be adjusted.
3		Loop	1400KC	Tune for maximum output	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

MOTOROLA
MODELS 68F11, 68F12, 68F14, 68F14B, 68F14M

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DATE 3/49 496-13 SET #58 FOLDER #13

PARTS LIST AND DESCRIPTIONS

MOTOROLA MODEL 6BF11

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mixer	12AU6	12AU6	7BK	
2	Oscillator	6C4	6C4	6BG	
3	IF Amp.	12BA6	12BA6	7BK	
4	Det.-AVC-AF	6AQ6	6AQ6	7BT	
5	Power Output	50B5	50B5	7B2	
6	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	23B7808	AF844D #	EZ42215	DSB403020-150	CL-224 #	Filter. Red.
B	20	150						" Orange.
C	20	150						Decoupling Blue.
8	.05	600	8S9816	684-05	GT6S5	ST-6-05	TC-15	Line Filter
9	.15	200	1A77283	484-.15*	GT2P1*	ST-4-1*	72P2	" Isolation.
10	.02	400	8S9802	484-02	GT4S2	ST-4-02	TC-12	Output Plate Bypass.
11	.01	400	8S9809	484-01	GT4S1	ST-4-01	TC-11	Audio Coupling.
12	.01	400	8S9809	484-01	GT4S1	ST-4-01	TC-11	Audio Coupling.
13	.002	400	8S9824	484-002	GT6D2	ST-6-002	TC-22	Tone Compensation.
14	1.0	100	8S9839	484-1.0	GT4W1	ST-2-1M	TC-10	" "
15	.1	400	8S9807	484-.1	GT4P1	ST-4-1	TC-1	Phono Isolation.
16	.1	200	8S9806	484-.1	GT2P1	ST-2-1	TC-1	RF Bypass Power Supply.
17	.01	400	8S9809	484-.01	GT4S1	ST-4-01	TC-11	Mixer Decoupling.
18	.05	200	8S9821	484-05	GT2S5	ST-4-05	TC-15	Mixer Cathode Bypass.
19	.05	400	8S9816	484-05	GT4S5	ST-4-05	TC-15	AVC Filter.
20	.05	400	8K471635	484-05	GT4S5	ST-4-05	TC-15	Hash Filter.
21	250	500	21R6648	1468-00025	5W5T25	MO.5-325	IFM-325	AF Plate Bypass.
22	250	500	21R6648	1468-00025	5W5T25	MO.5-325	IFM-325	Diode RF Filter.
23	250	500	21R6648	1468-00025	5W5T25	MO.5-325	IFM-325	Tone Compensation.
24	100	300	21R6641	1468-0001	5W5T1	MO.5-31	IFM-31	RF Coupling. Cer.

* Wind same number of turns a round replacement capacitor as on the original.

\# Use cardboard insulating sleeve.

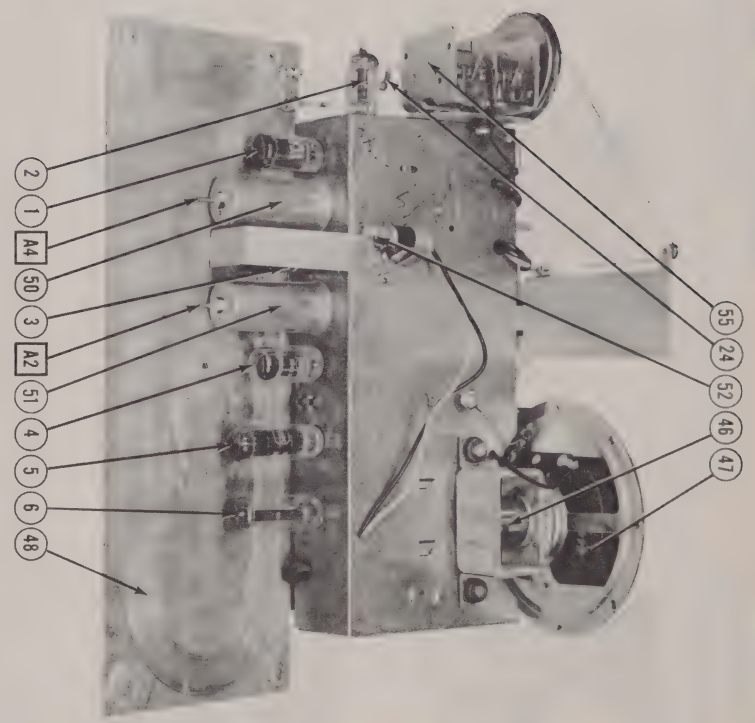
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
25A	500KΩ	½	18K470033	D17-133X	AT-81	Volume Control tapped @ 25KΩ.
B	Shaft		Not Req.	E	KSS-3	Attach to 25A per Instructions.
C	Switch		" "	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES	
26	1 Meg.	½	6R6004	BTS-1 Meg.	Br.-Blk.-Grn.	Mixer Grid.
27	1000Ω	½	6R6301	BTS-1000	Br.-Blk.-Red.	" Cathode.
28	3300Ω	½	6R6036	BTS-3300	Or.-Or.-Red.	" Decoupling.
29	100KΩ	½	6R6075	BTS-100K	Br.-Blk.-Yl.	Oscillator Grid.
30	220Ω	½	6R6389	BW-½-220	Red-Red-Br.	IF Cathode.
31	1 Meg.	½	6R6004	BTS-1 Meg.	Br.-Blk.-Grn.	AVC Net.
32	47KΩ	½	6R6056	BTS-47K	Yl.-Vi.-Or.	Diode Filter.
33	3.3 Meg.	½	6R2118	BTS-3.3 Meg.	Or.-Or.-Grn.	AF Grid.
34	1MΩ	½	6R5551	BW-½-120	BR.-Red-Br.	AF Cathode.
35	220KΩ	½	6R6015	BTS-220K	Red-Red-Yl.	AF Plate Load.
36	470KΩ	½	6R6032	BTS-470K	Yl.-Vi.-Yl.	Output Grid.
37	150Ω	½	6R6373	BW-½-150	Br.-Grn.-Br.	Output Cathode.
38	1500Ω	½	6R6038	BTS-1500	Br.-Grn.-Red.	Bias Network.
39	15000Ω	½	6R6038	BTS-1500	Br.-Grn.-Red.	" "
40	1200Ω	1	6R5770	BTA-1200	Br.-Red-Red.	Filter.
41	220Ω	1	6R6389	BW-1-220	Red-Red-Br.	Filter.
42	27Ω	½	6R5683		Red-Vi.-Blk.	Surge Limiter.
43	470KΩ	½	6R6032	BTS-470K	Yl.-Vi.-Yl.	Phono Tone Compensation.
44	22KΩ	½	6R6028	BTS-22K	Red-Red-Or.	" Isolation.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
45	2800Ω	4.0Ω	260Ω	.8Ω	25B76117	A-3876 ‡	T22845 ‡	A-2928 ‡	‡ Drill new mounting holes

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V.C. IMP.		ST-107 †		
46	PM	4.0Ω	50B470034	Mod. P5-V	5A15 †	† Drill and tap Magnet Frame.
	CONE DIA.	V.C. DIA.				
47	4 3/4"	9/16"				

R F COILS

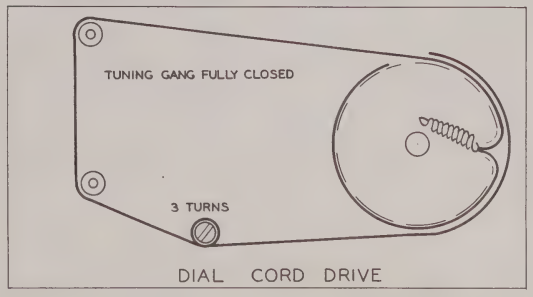
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
48A	Loop Ant.	0Ω	1.2Ω	24C470214		Models 68F11, 68F12
B	Loop Ant.			24K482757		Models 68F14, 68F14B, 68F14M
49	Osc. Coil	1Ω	8.6Ω	24A74616	14-1060 §	§ Add 50MMFD Cap. from high side of Tuning Cap. to Osc. Grid
50A	Input IF	14Ω	14Ω	24B470038	16-6678	Use with Shield & Sleeve 1A71049
50B	Input IF			24B482863		Use with Shield. 24K485936
51A	Output IF	13Ω	13Ω	24B75487	16-6678	Use with Shield & Sleeve. 1A71049
51B	Output IF			24B482865		Use with Shield. & 24K485936

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MOTOROLA PART No.		
52	Bayonet	6-8V	0.15A	Brown	65X11854		Type # 47

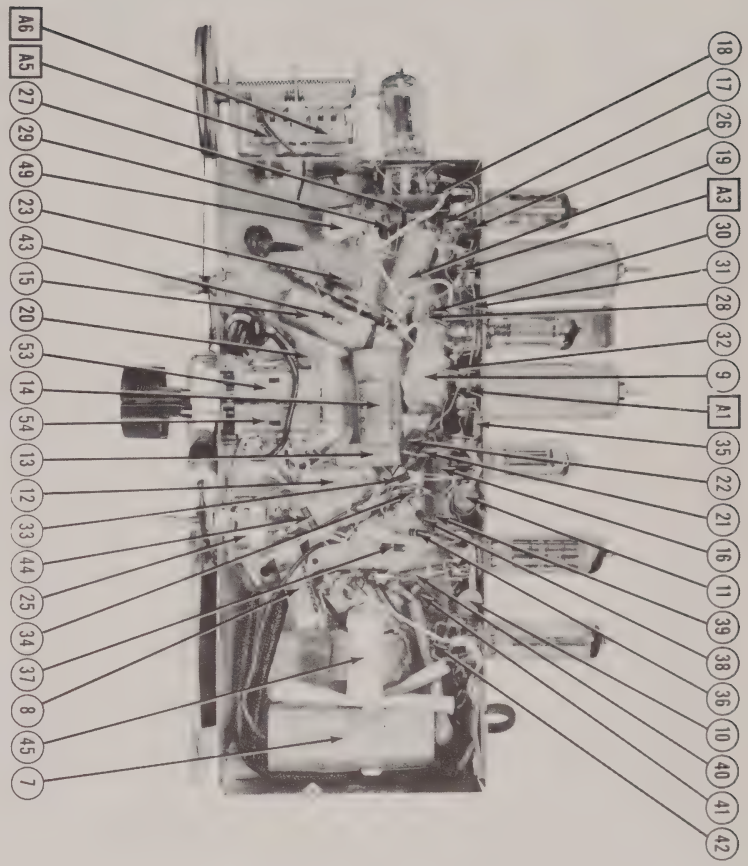
MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
53	Switch	40A470510	Motor - Reject
54	Switch	40A470511	Phono - Tone
55	2 Gang Var.Cap.	1X470181	(22-447MMF, 36-197MMF)
	Dial Pointer	52A470003	
	Dial Scale	34K480001	Models 68F11, 68F12,68F14M
	Dial Scale	34B470208	Model 68F14
	Dial Scale	34K471642	Model 68F14B

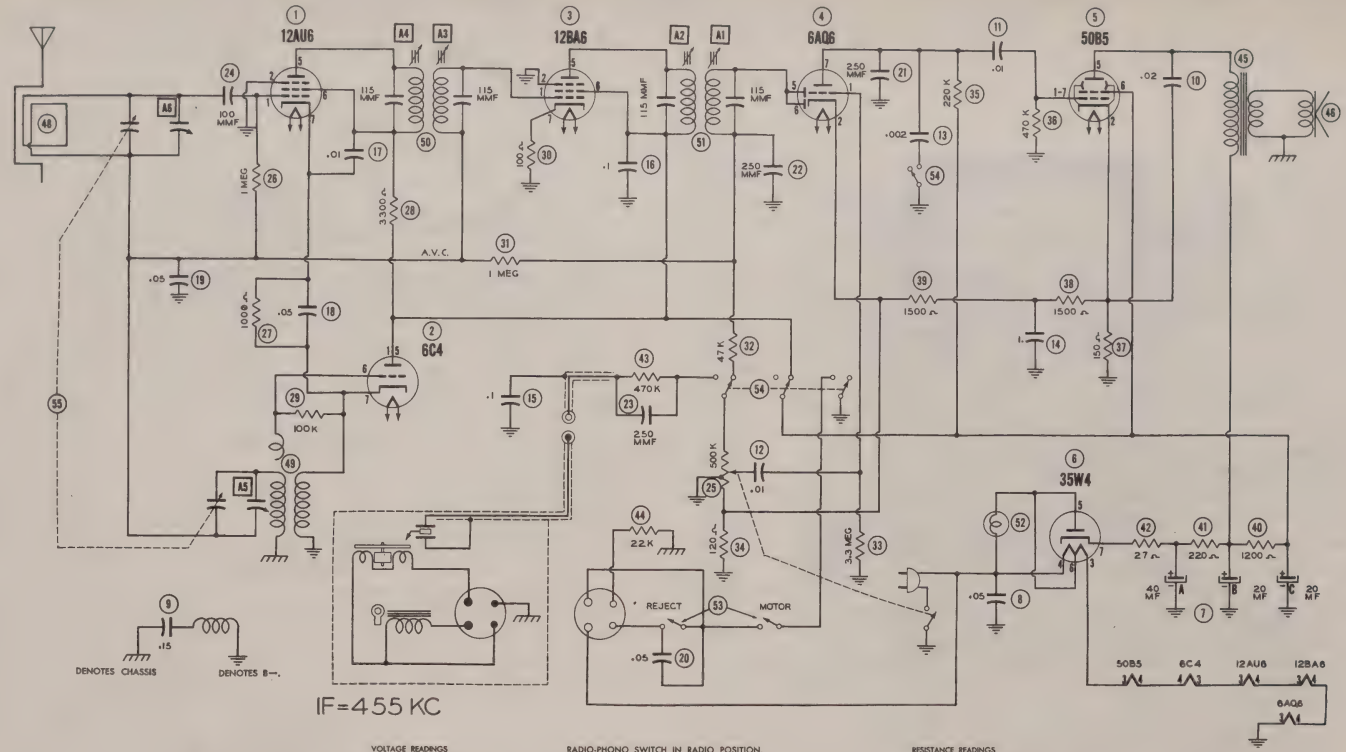


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



DATE 5/49 496-13 SET #58 FOLDER #13
MOTOROLA MODEL 68F11
MOTOROLA MODEL 68F11



VOLTAGE READINGS — RADIO-PHONO SWITCH IN RADIO POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12AU6	-.2VDC	0V	30VAC	18VAC	75VDC	75VDC	1.4VDC
2	6C4	85VDC	0V	30VAC	36VAC	85VDC	§-7.8VDC	0V
3	12BA6	0V	0V	18VAC	5.8VAC	85VDC	85VDC	.9VDC
4	6AQ6	-.3VDC	.3VDC	0V	5.8VAC	-.4VDC	-.4VDC	45VDC
5	50B5	0V	6VDC	85VAC	36VAC	95VDC	85VDC	0V
6	35W4	115VDC	0V	85VAC	117VAC	112VAC	112VAC	115VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12AU6	2.5 Meg.	0Ω	320	210	65KΩ	65KΩ	1KΩ
2	6C4	60KΩ	0Ω	320	400	60KΩ	100KΩ	1Ω
3	12BA6	1.5 Meg.	0Ω	210	70	60KΩ	60KΩ	220Ω
4	6AQ6	3.3 Meg.	120Ω	0Ω	70	550KΩ	550KΩ	290KΩ
5	50B5	470KΩ	150Ω	90Ω	40Ω	60KΩ	60KΩ	470KΩ
6	35W4	60KΩ	Inf.	0Ω	120Ω	115Ω	115Ω	60KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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496-13

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

OLYMPIC MODEL
TV-922

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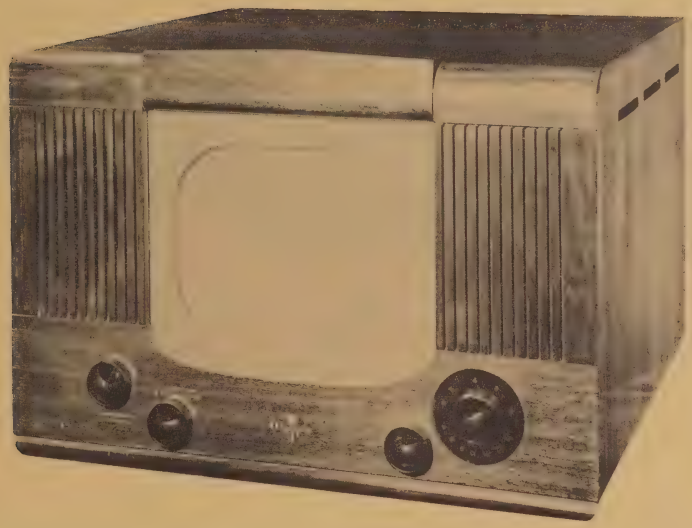

OLYMPIC MODEL
TV-922

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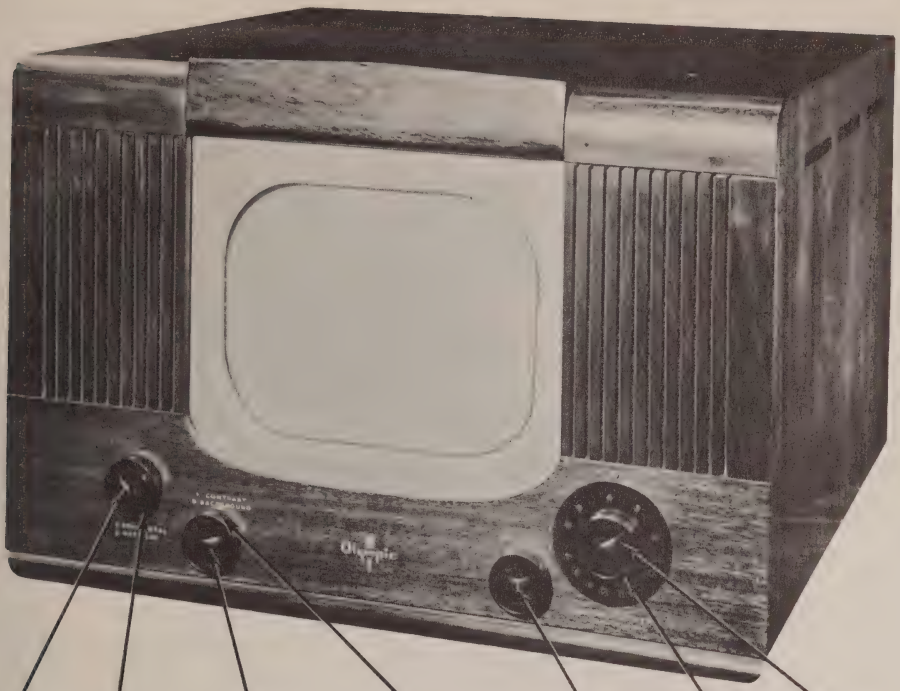

OLYMPIC
MODEL TV-922

TRADE NAME	Olympic, Model TV-922
MANUFACTURER	Olympic Radio and Television Corp., 3101-19 38th Ave., Long Island City, New York
TYPE SET	Television Receiver
TUBES	Twenty-Two
POWER SUPPLY	105-125 Volts, 60 cycle AC.
TUNING RANGE—	Channels 2 through 13 RATING 1.94 Amps. @ 117 Volts

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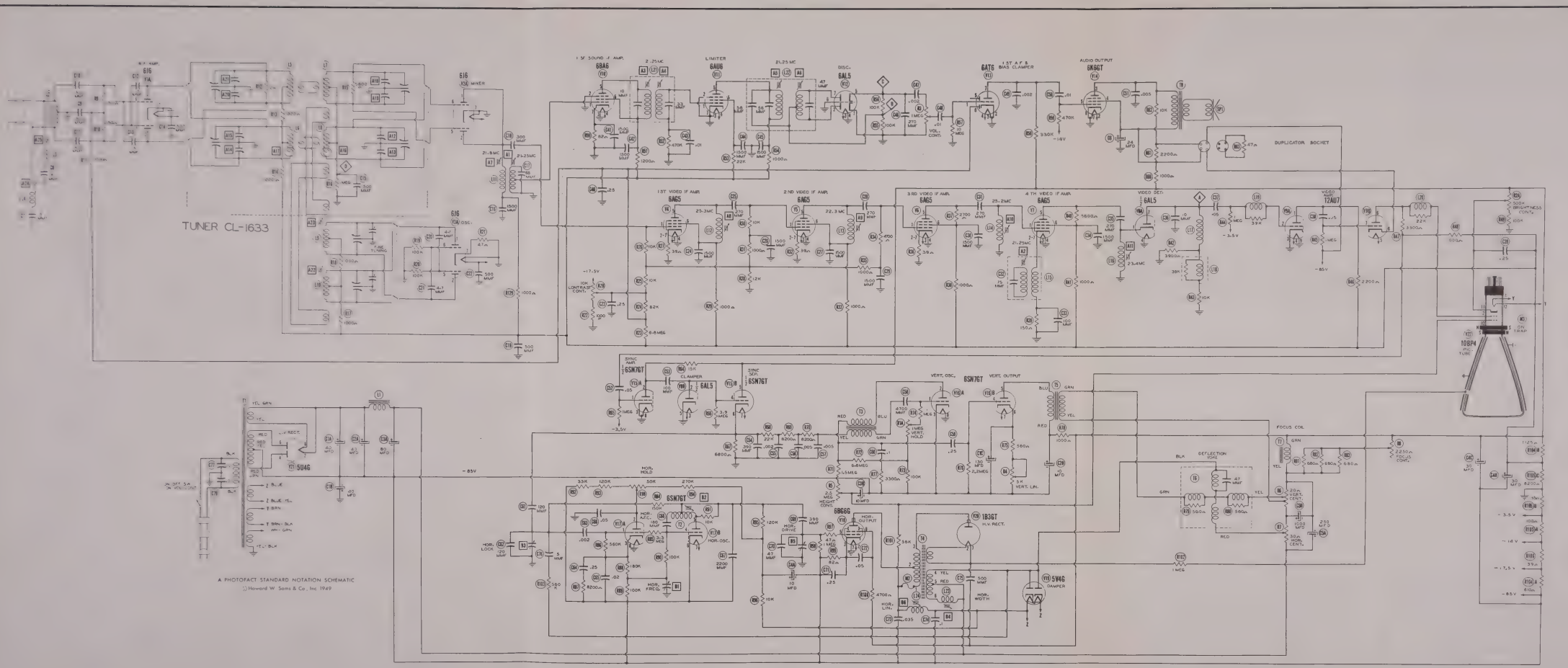
TUNER CL-1633
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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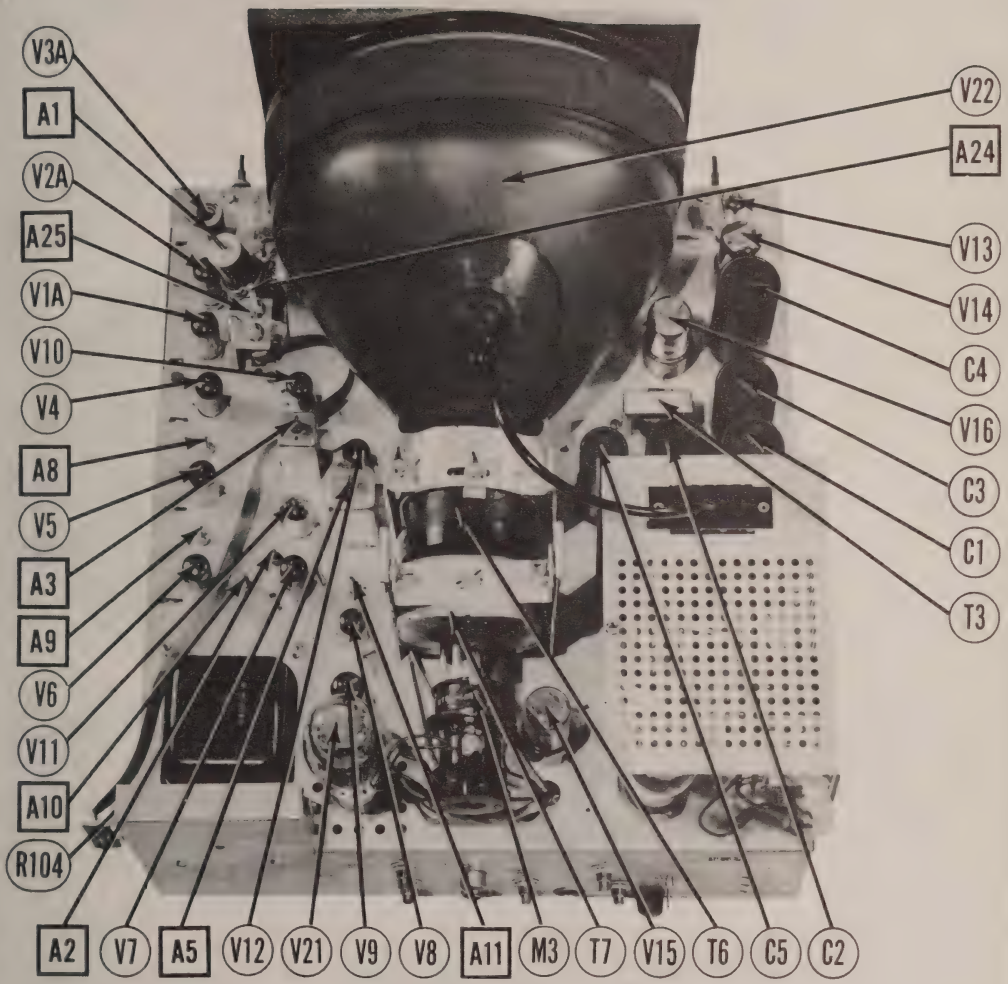
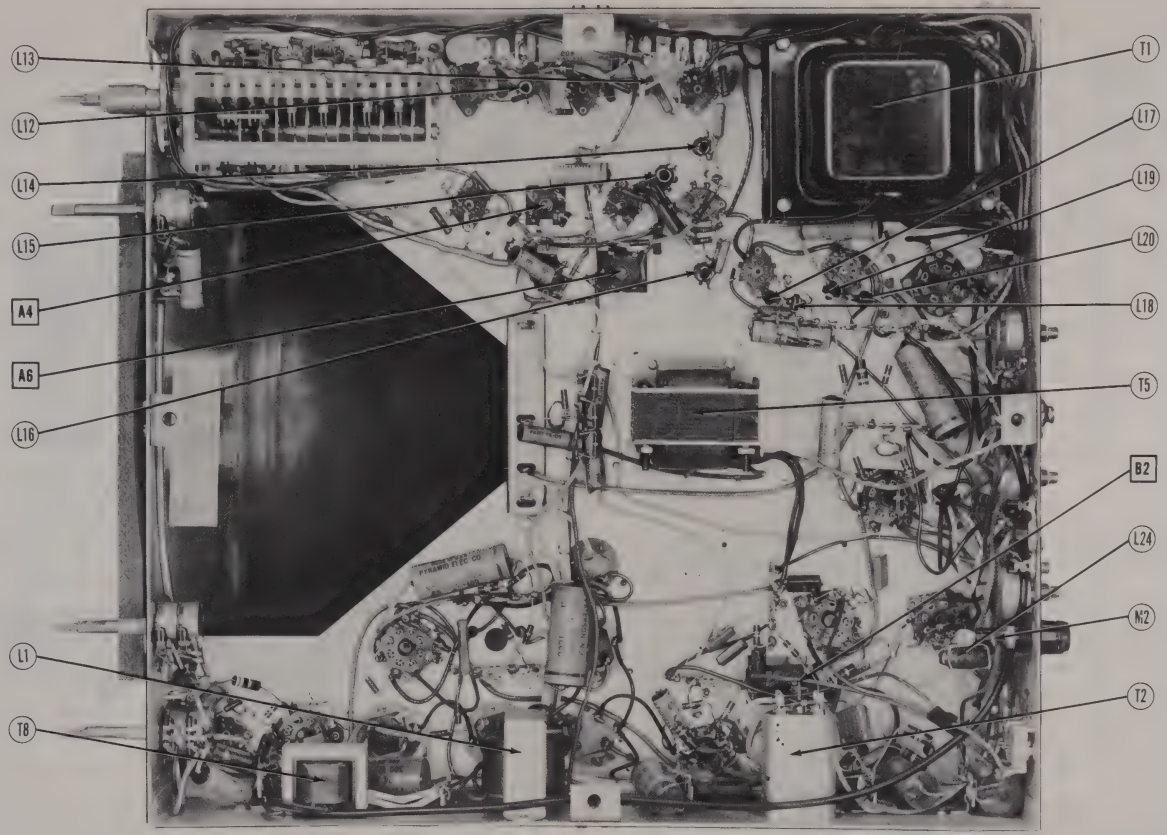
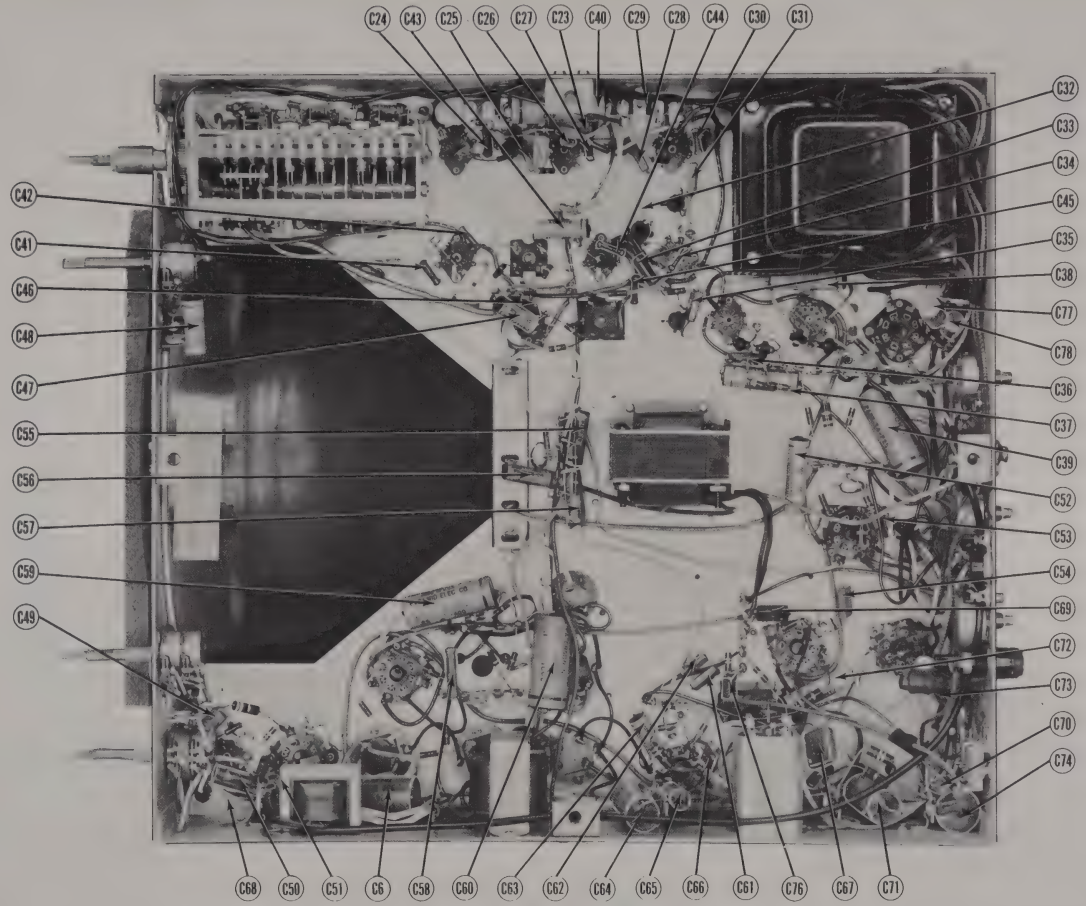
OLYMPIC
MODEL TV-922



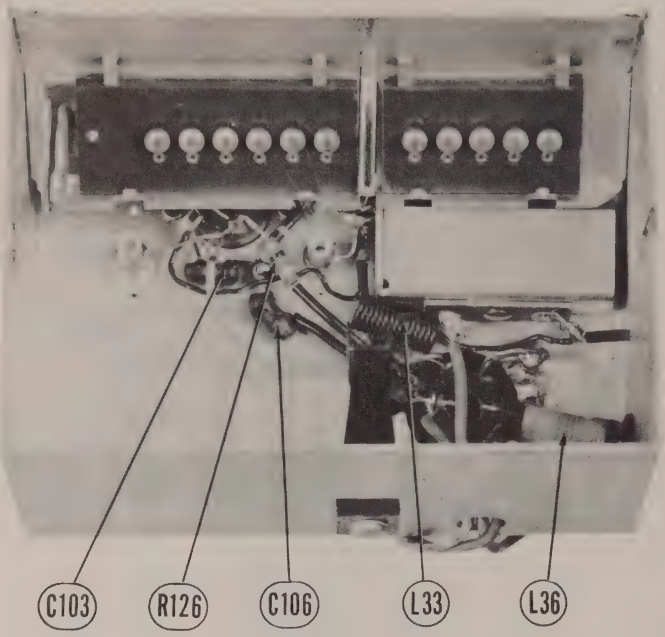
CHASSIS-TOP VIEW



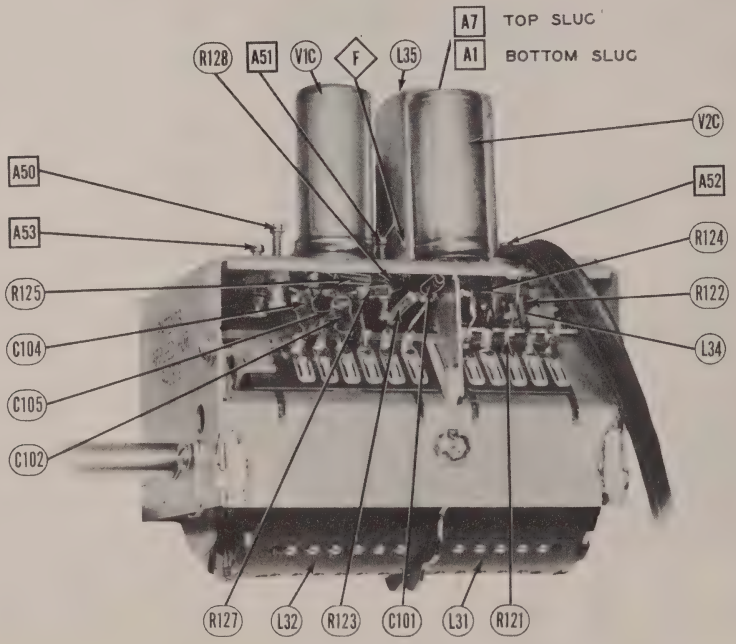
CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION



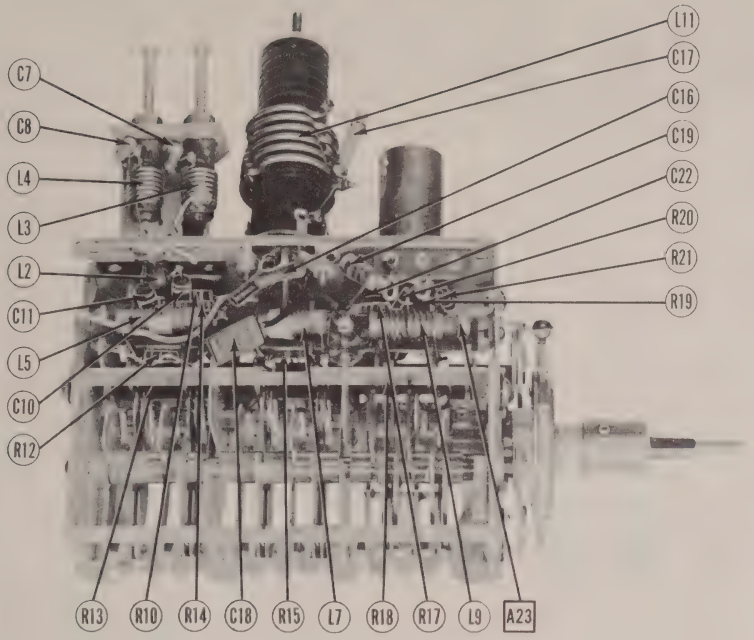
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



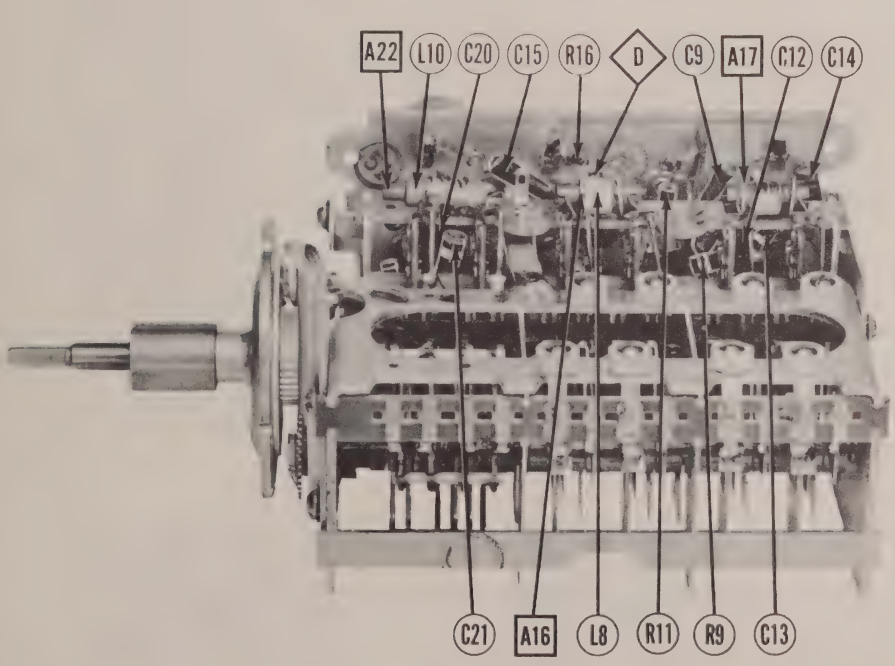
TUNER CL-1677 BOTTOM VIEW



TUNER CL-1677 RIGHT SIDE



TUNER CL-1633 LEFT SIDE



TUNER CL-1633 RIGHT SIDE

ALIGNMENT INSTRUCTIONS

SOUND TRAP & SOUND IF ALIGNMENT

Set contrast control to -3 volts. (Measure from arm of control to chassis. Leave at this setting throughout alignment) Injection of signal may be accomplished by fashioning a loop of two turns of unsulated hook-up wire around the mixer tube (V2).

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.		Loop (See Prealignment Instructions)	21.25MC (Unmod.)	9	DC Probe to point (A) Common to chassis.	A1, A2	Adjust for minimum deflection.
2.		"	"	"	DC Probe to point (B) Common to chassis.	A3, A4, A5	Adjust for maximum deflection. Attenuate signal generator to give approximately a 2 volt reading.
3.		"	"	"	DC Probe to point (C) Common to chassis.	A6	Adjust for Zero Reading. A positive and negative reading will be obtained on either side of correct setting. Repeat adjustments of A5 and A6.

VIDEO IF ALIGNMENT

Remove oscillator tube V3 while aligning video IF channel.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.		"	21.8MC (Unmod.)	9	DC Probe to point (A) Common to chassis.	A7	Adjust for maximum deflection.
5.		"	25.3MC	"	"	A8	Adjust for maximum deflection.
6.		"	22.3MC	"	"	A9	Adjust for maximum deflection.
7.		"	25.2MC	"	"	A10	Adjust for maximum deflection.
8.		"	23.4MC	"	"	A11	Adjust for maximum deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect syncromized sweep voltage from signal generator to the horizontal amplifier of the oscilloscope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.		Loop around mixer tube.	25MC (10MC Sweep)	25.75MC	9	Vert. Amp. to point (A) Low side to chassis.	A8, A10	Slightly retouch these adjustments to place 25.75MC marker as per Fig 1.
10.		"	"	22.25MC	"	"	A7, A9, A11	Slightly retouch A7, A9 to place 22.25MC marker as per Fig 1. Adjust A11 to make flat-topped pattern. After these adjustments have been made recheck 25.75MC marker to see that it is still within 50 to 60% of the vertical height.

This receiver incorporates one of three tuners. Determine which tuner is incorporated in receiver to be aligned and follow the corresponding tuner alignment.

RF AMPLIFIER & MIXER ALIGNMENT (TUNER CL-1633)

The RF Amp. and mixer circuits are pre-aligned at factory and normally do not require adjustment. However, if tuner is definitely known to be out of align., it will be necessary to remove the tuner and use extended leads for B_+ and filament supply. Set fine tuning control to the center of its range and remove oscillator tube V3.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 150Ω carbon res.	Insert 150Ω resistor in each lead and connect across Antenna terminals.	213MC (10MC Sweep)	211.25MC and 215.75MC	13	Vert. Amp. to point (D) Low side to chassis.	A12, A13, A14, A15	Adjust for approx. response shown in Fig 2 with markers appearing more than 70% of peak amplitude. Keep RF & mixer trimmer pairs in approx. same relative position.
12.	"	"	177MC (10MC Sweep)	175.25MC and 179.75MC	7	"	A16, A17	Adjust rings for wave form per Fig 2
13.	"	"	183MC (10MC Sweep) 189MC (10MC Sweep) 195MC (10MC Sweep) 201MC (10MC Sweep) 207MC (10MC Sweep)	181.25MC and 185.75MC 187.25MC and 191.75MC 193.25MC and 197.75MC 199.25MC and 203.75MC 205.25MC and 209.75MC	8 9 10 11 12	"		Check response on all high-band channels. Slight adjustments of A12, A13, A14, A15, A16 or A17 may be required to obtain optimum response for all channels.
14.	"	"	85MC (10MC Sweep)	83.25MC and 87.75MC	6	"	A18, A19, A20, A21	Adjust for approx. response as per Fig 2.
15.	"	"	79MC (10MC Sweep) 69MC (10MC Sweep) 63MC (10MC Sweep) 57MC (10MC Sweep)	77.25MC and 81.75MC 67.25MC and 71.75MC 61.25MC and 65.75MC 55.25MC and 59.75MC	5 4 3 2			Check response on all low-band channel. Slight adjustments of A18, A19, A20, and A21 may be required to obtain optimum response for all channels.

OSCILLATOR ALIGNMENT (TUNER (CL-1633)

Replace oscillator tube and recheck fine tuning to see that it is at the midpoint of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
16.	Two 150Ω carbon res.	Across Antenna Terminal.	215.75MC	13	DC Probe to point (B) Common to chassis.	A22	Adjust for maximum deflection.
17.	"	"	87.75MC	6	"	A23	Adjust for maximum deflection.
18.	"	"					Check to see that all other channels are received well within limits of fine tuning control. If not, compromise may be made using A22 for channels 7 thru 13 and A23 for channels 2 thru 6.

WAVE TRAP ADJUSTMENTS (TUNER CL-1633)

Wave traps A24 and A25 are used for specific types of interference and their alignment will depend upon the type encountered.

With the receiver tuned to the channel having the interference, set fine tuning control until interference is at maximum. Adjust A24 and A25 for minimum interference in the picture and sound keeping both cores at approximately the same relative position. Turn one core 1/2 turn and adjust the other for minimum interference.

RF AMPLIFIER & MIXER ALIGNMENT (TUNER CL-1677)

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 150Ω carbon res.	Across Antenna Terminals.	207MC (10MC Sweep)	205.25MC and 209.75MC	12	Vert Amp thru 10KΩ to point (F) Low side to chassis.	A50,A51, A52	Adjust for flat top pattern with markers appearing as per Fig 2.
12.	"	"	213MC (10MC Sweep)	211.25MC and 215.75MC	13	"		Check markers on all channels. If maximum reception is desired for one specific channel adjust A50, A51 and A52 on that channel and then check all other channels to make certain they have not been appreciably affected.
			201MC (10MC Sweep)	199.25MC and 203.75MC	11			
			195MC (10MC Sweep)	193.25MC and 197.75MC	10			
			189MC (10MC Sweep)	187.25MC and 191.75MC	9			
			183MC (10MC Sweep)	181.25MC and 185.75MC	8			
			177MC (10MC Sweep)	175.25MC and 179.75MC	7			
			85MC (10MC Sweep)	83.25MC and 87.75MC	6			
			79MC (10MC Sweep)	77.25MC and 81.75MC	5			
			69MC (10MC Sweep)	67.25MC and 71.75MC	4			
			63MC (10MC Sweep)	61.25MC and 65.75MC	3			
			57MC (10MC Sweep)	55.25MC and 59.75MC	2			

OSCILLATOR ALIGNMENT (TUNER CL-1677)

Complete alignment of the oscillator circuit may not be necessary. This is determined by checking to see that a zero reading is obtained for each channel when the fine tuning control is turned through the midpoint of its range. (Connect signal generator and VTVM as in steps 13 and 14. Sound frequencies are listed in step 14). If the majority of the channels seem to need oscillator alignment this sometimes may be done by one operation- step 13-by adjusting A53. It should be noted that this is an all channel adjustment and should not be adjusted for individual channels. If step 13 fails to align the oscillator circuits sufficiently, it will be necessary to adjust the oscillator coil slugs. These are accessable one channel at a time. Turn the fine tuning control to its extreme counter-clockwise position which automatically centers this control. Note that the oscillator slugs are now available one by one, as the channel switch is rotated, through the small hole in the front panel of the tuner sub-chassis. Follow step 14 for alignment frequencies.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
13.	Direct	High side to one Ant. Terminal. Low side to chassis.	215.75MC	13	DC Probe to point (F) Common to chassis.	A53	Adjust for zero reading between positive and negative peaks.
14.	"	"	209.75MC	12	"	"	" "
			203.75MC	11			
			197.75MC	10			
			191.75MC	9			
			185.75MC	8			
			179.75MC	7			
			87.75MC	6			
			81.75MC	5			
			71.75MC	4			
			65.75MC	3			
			59.75MC	2			

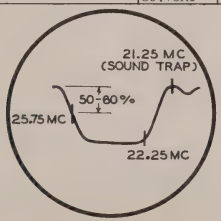


FIG. 1

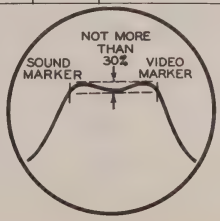


FIG. 2

ALIGNMENT INSTRUCTIONS (CONT.)

RF AMPLIFIER & MIXER ALIGNMENT (TUNER CL-1428)

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11	Two 150Ω carbon res.	Across Antenna Terminals.	213 (10MC Sweep)	211.25MC and 215.75	13	Vert. Amp. thru 10KΩ to point ◇ Low side to chassis.	A26,A27 A28,A29	Adjust for a pprox. response pattern shown in Fig.2 with markers appearing more than 70% of peak amplitude. The dip should not exceed 30%. Keep RF and Mixer slug pairs in approx. same relative position.
12	"	"	207 (10MC Sweep)	205.25MC and 209.75MC	12	"	"	Check response pattern for all high band channels. Slight adjustments of A26, A27, A28, and A29 may be required to obtain optimum response for all channels.
			201 (10MC Sweep)	199.25MC and 203.75MC	11			
			195 (10MC Sweep)	193.25MC and 197.75MC	10			
			189 (10MC Sweep)	187.25MC and 191.75MC	9			
			183 (10MC Sweep)	181.25MC and 185.75MC	8			
			177 (10MC Sweep)	175.25MC and 179.75MC	7			
13	"	"	85MC (10MC Sweep)	83.25MC and 87.75MC	6	"	A30,A31 A32,A33	Adjust for approx. response as per Fig 2. Keep slug pairs in approx. same relative position.
14	"	"	79MC (10MC Sweep)	77.25MC and 81.75MC	5			Check response in all low band channels. Slight adjustment of A30,A31, A32 and A33 may be required to give optimum response on all channels.
			69MC (10MC Sweep)	67.25MC and 71.75MC	4			
			63MC (10MC Sweep)	61.25MC and 65.75MC	3			
			57MC (10MC Sweep)	55.25MC and 59.75MC	2			

OSCILLATOR ALIGNMENT (TUNER CL-1428)

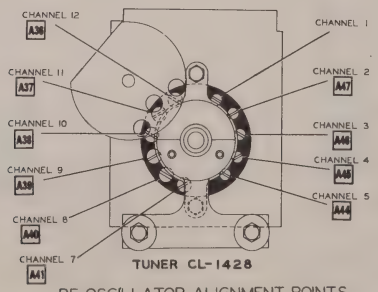
Set fine tuning control approximately 140° from its full counter-clockwise position. This aligns the holes in the drive disc with the adjustment screws on the oscillator switch wafer. Do not change this position during entire oscillator alignment.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
15	Two 150Ω carbon res.	Across Antenna Terminals.	215.75MC	13	DC Probe to point B. Common to chassis.	A34 or A35	Adjust for max. deflection
16	"	"	209.75MC	12	"	A36	" " " "
17	"	"	203.75MC	11	"	A37	" " " "
18	"	"	197.75MC	10	"	A38	" " " "
19	"	"	191.75MC	9	"	A39	" " " "
20	"	"	185.75MC	8	"	A40	" " " "
21	"	"	179.75MC	7	"	A41	" " " "
22	"	"	87.75MC	6	"	A42 or A43	" " " "
23	"	"	81.75MC	5	"	A44	" " " "
24	"	"	71.75MC	4	"	A45	" " " "
25	"	"	65.75MC	3	"	A46	" " " "
26	"	"	59.75MC	2	"	A47	" " " "

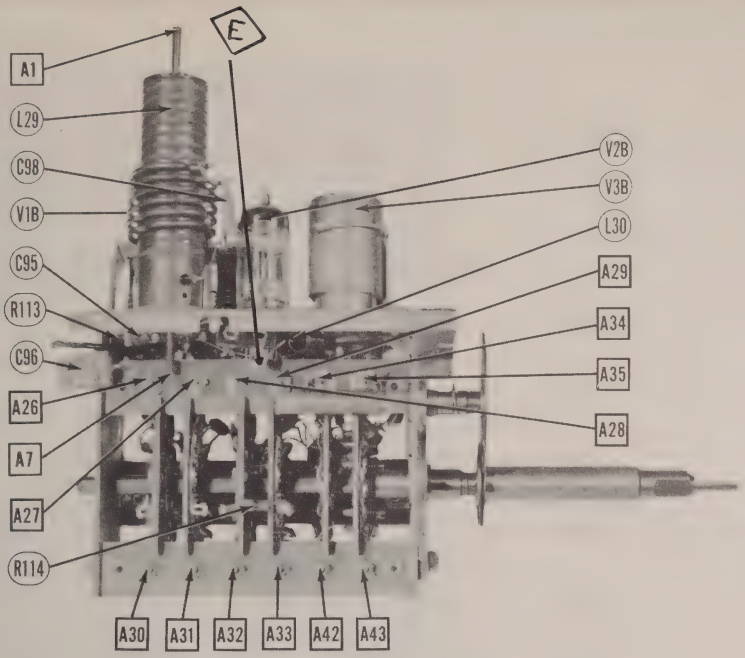
WAVE TRAP ADJUSTMENTS (TUNER CL-1428)

Wave traps A48 and A49 are used for specific types of interference and their alignment will depend upon the type encountered.

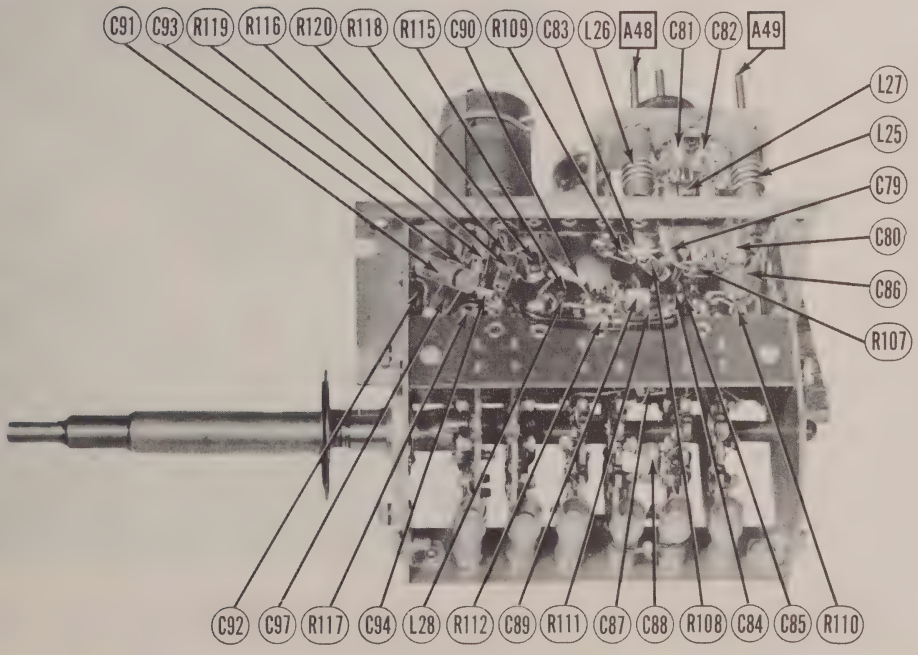
With the receiver tuned to the channel having the interference set fine tuning control until interference is at maximum. Adjust A48 and A49 for minimum interference in the picture and sound keeping the cores at approximately the same relative position. Turn one core 1/2 turn adjust the other for minimum interference.



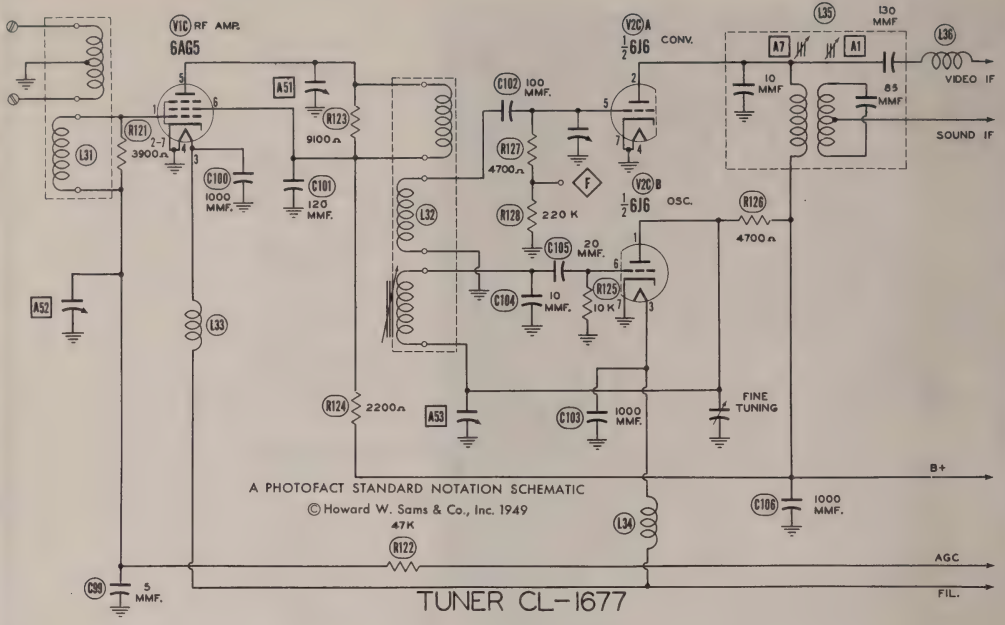
RF OSCILLATOR ALIGNMENT POINTS

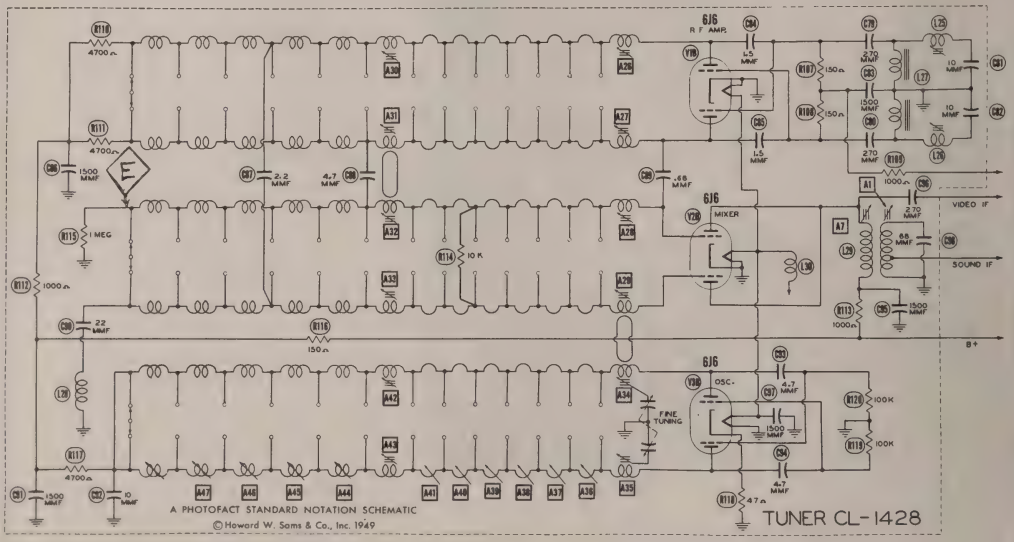


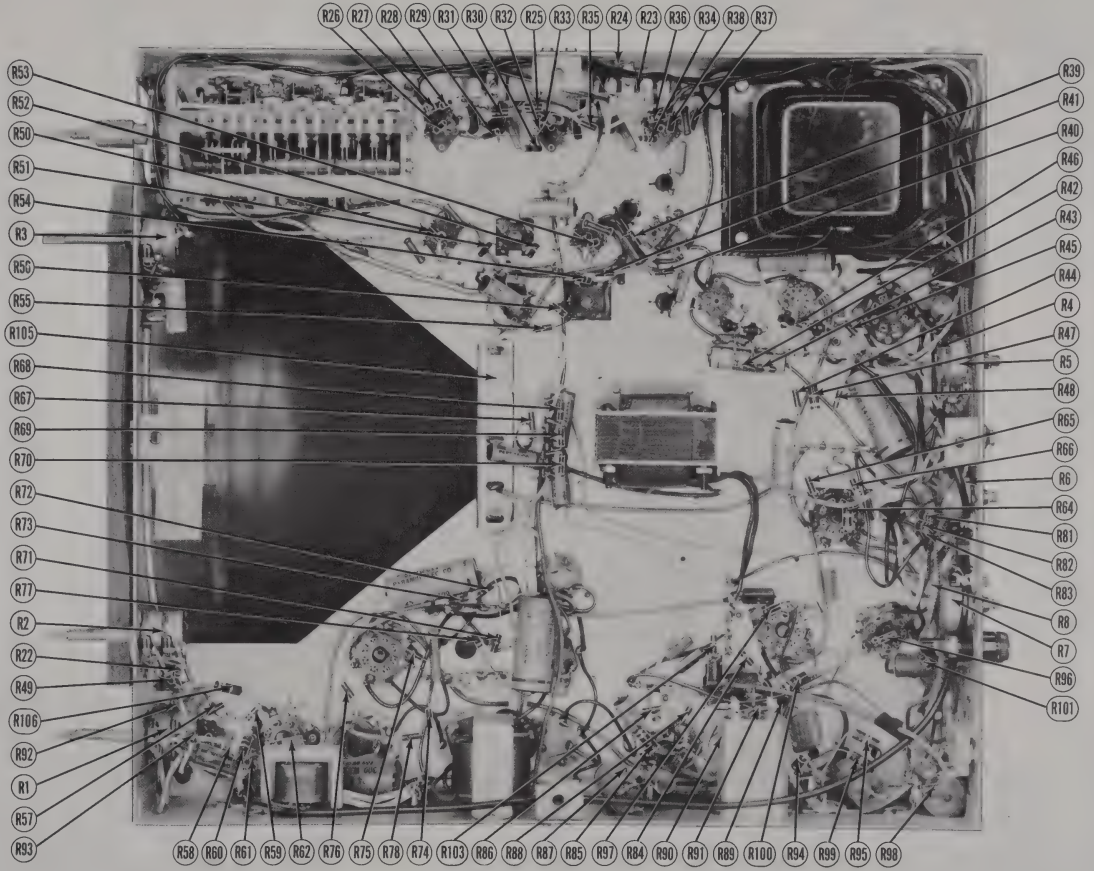
TUNER CL-1428 LEFT SIDE



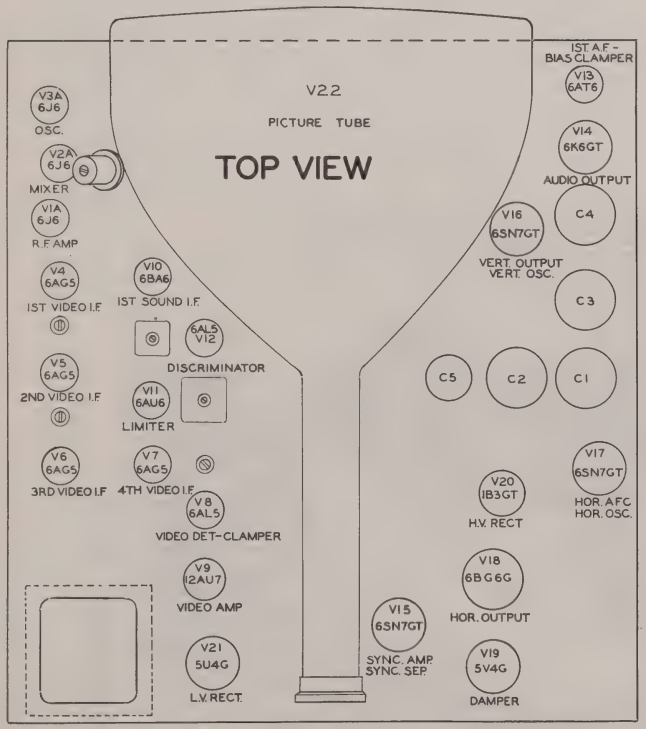
TUNER CL-1428 RIGHT SIDE

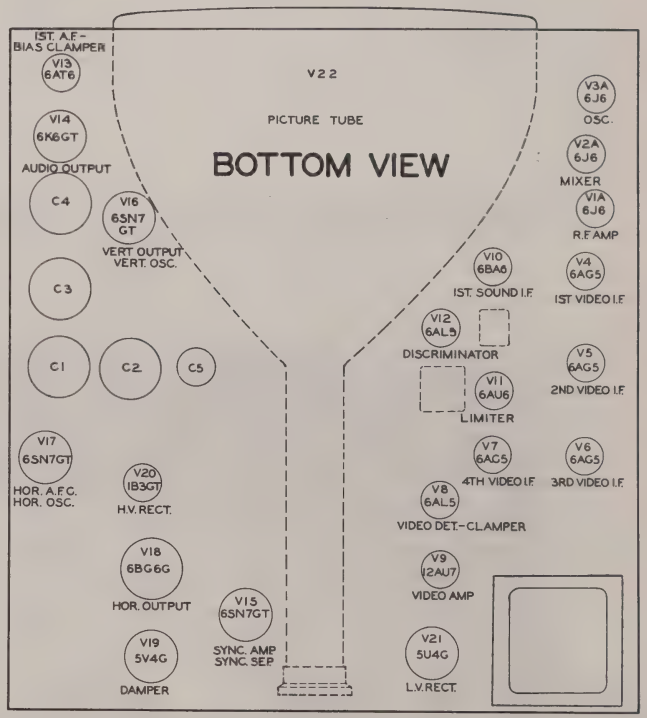

V1C RF AMP. 6AG5
V2C A 1/2 6J6 CONV.
V2C B 1/2 6J6 OSC.
L35 130 MMF
A7
A1
L36
VIDEO IF
SOUND IF
10 MMF
85 MMF
A51
R123 9100Ω
C102 100 MMF.
R127 4700Ω
F
R128 220 K
C105 20 MMF.
C104 10 MMF.
R125 10 K
R126 4700Ω
R121 2-1 3900Ω
L31
C100 1000 MMF.
C101 120 MMF.
L32
L33
A52
R124 2200Ω
A53
C103 1000 MMF.
FINE TUNING
B+
C106 1000 MMF.
L34
47K
R122
AGC
FIL.
C99 5 MMF.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1949
TUNER CL-1677


R110 4700Ω
R111 4700Ω
E
C96 1500 MMF
C97 2.2 MMF
C98 4.7 MMF
C99 .68 MMF
R115 1 MEG
R114 10 K
R112 1000Ω
C100 22 MMF
R116 150Ω
L28
R117 4700Ω
C101 1500 MMF
C102 10 MMF
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1949
6J6 R F AMP.
V1B
C94 .5 MMF
R107 150Ω
R108 150Ω
C95 1500 MMF
C96 .5 MMF
C78 2.70 MMF
C79 1500 MMF
C80 2.70 MMF
R109 1000Ω
C81 10 MMF
L25
L27
C82 10 MMF
L26
6J6 MIXER
V1B
L30
A1
C86 2.70 MMF
A7
L29
C88 .68 MMF
R113 1000Ω
C85 1500 MMF
VIDEO IF
SOUND IF
B+
C93 4.7 MMF
6J6 OSC.
V2B
C87 4.7 MMF
C83 1500 MMF
C84 4.7 MMF
R118 47Ω
R120 100K
R119 100K
FINE TUNING
A47 A46 A45 A44 A41 A40 A39 A38 A37 A36 A35
TUNER CL-1428



CHASSIS BOTTOM VIEW- RESISTOR IDENTIFICATION





TUBE PLACEMENT CHART

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
V1A	6J6	93VDC	93VDC	0V	6.3VAC	-.7VDC	-.7VDC	0V		
V2A	6J6	100VDC	100VDC	6.3VAC	0V	1.8VDC	-2.2VDC	0V		
V3A	6J6	90VDC	90VDC	0V	6.3VAC	§-3VDC	§-4.5VDC	.3VDC		
V4	6AG5	-.8VDC	.2VDC	6.3VAC	0V	100VDC	100VDC	.2VDC		
V5	6AG5	-.8VDC	.2VDC	6.3VAC	0V	100VDC	100VDC	.2VDC		
V6A	6AG5	-.8VDC	.2VDC	6.3VAC	0V	85VDC	100VDC	.2VDC		
V7A	6AG5	0V	1VDC	0V	6.3VAC	60VDC	100VDC	1VDC		
V8	6AL5	0V	-5.8VDC	6.3VAC	0V	0V	0V	-4.9VDC		
V9	12AU7	100VDC	-.7VDC	0V	6.3VAC	6.3VAC	50VDC	-90VDC	-90VDC	PIN 9 0V
V10A	6BA6	0V	0V	0V	6.3VAC	90VDC	90VDC	1VDC		
V11A	6AU6	-.5VDC	0V	0V	6.3VAC	105VDC	73VDC	0V		
V12	6AL5	0V	-.4VDC	6.3VAC	0V	0V	0V	-.4VDC		
V13	6AT6	-.5VDC	0V	0V	6.3VAC	-.6VDC	-.7VDC	65VDC		
V14	6K6GT	200VDC	6.3VAC	200VDC	205VDC	-10VDC-	-15VDC	0V	0V	
V15	6SN7GT	-.8VDC	150VDC	0V	-5.4VDC	225VDC	.6VDC	6.3VAC	0V	
V16	6SN7GT	-92VDC	-7VDC	-90VDC	-63VDC	225VDC	-75VDC	6.3VAC	0V	
V17	6SN7GT	-70VDC	50VDC	-85VDC	-125VDC	65VDC	-90VDC	6.3VAC	0V	
V18	6BG6G	0V	6.3VAC	-80VDC	0V	-85VDC	-85VDC	0V	172VDC	†
V19	5V4G	-90VDC	**320VDC	290VDC	260VDC	0V	260VDC	0V	**320VDC	
V20	1B3GT	†	DO NOT	MEASURE						
V21	5U4G	0V	275VDC	0V	365VAC	0V	365VAC	0V	275VDC	
V22	10BP4	‡108VDC	45VDC	PIN 10 310VDC	PIN 11 58VDC	PIN 12 ‡ 108VDC				

Note
† Do not measure
** 5VAC will be measured between filament pins.
‡ 6.3VAC will be measured between filament pins.
§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
V1A	6J6	*2.5K	*2.5K	0Ω	.2Ω	80K	80K	0Ω		
V2A	6J6	*2.5K	*2.5K	.2Ω	0	1 Meg.	1 Meg	0Ω		
V3A	6J6	*2.5K	*2.5K	0Ω	.2Ω	100K	100K	47Ω		
V4	6AG5	15K	39Ω	.2Ω	0Ω	*2.2K	*2.2K	39Ω		
V5	6AG5	16K	39Ω	.2Ω	0Ω	*2.5K	*2.5K	39Ω		
V6A	6AG5	12K	39Ω	.2Ω	0Ω	*5K	*2.5K	39Ω		
V7A	6AG5	.2Ω	150Ω	0Ω	.2Ω	*8K	*2.5K	150Ω		
V8	6AL5	.2Ω	3.9 Meg.	.2Ω	0Ω	0Ω	0Ω	2.8K		
V9	12AU7	*3.5K	1 Meg.	0Ω	.2Ω	.2Ω	*5.5K	1 Meg.	800Ω	PIN 9 0Ω
V10A	6BA6	0Ω	0Ω	0Ω	.2Ω	*2.5K	*2.5K	80Ω		
V11A	6AU6	470K	0Ω	0Ω	.2Ω	*2.2K	24K	0Ω		
V12	6AL5	200K	100K	.2Ω	0Ω	0Ω	0Ω	100K		
V13	6AT6	10 Meg.	0Ω	0Ω	.2Ω	Inf.	80K	*350K		
V14	6K6GT	20K	.2Ω	*2K	*2K	540K	130Ω	0Ω	0Ω	
V15	6SN7GT	1 Meg.	*15K	0Ω	3.9 Meg.	*1K	6K	.2Ω	0Ω	
V16	6SN7GT	1 Meg.	2.8 Meg. 1.4 Meg.	800Ω	2 Meg.	*2k	1500Ω 6.5K	.2Ω	0Ω	
V17	6SN7GT	700K	200K	280K	200K	*500K	700Ω	.2Ω	0Ω	
V18	6BG6G	Inf.	.2Ω	820Ω	Inf.	1.2 Meg.	1.2 Meg.	0Ω	*4.5k	*Cap 500K
V19	5V4G	700Ω	420K	420K	*65Ω	Inf.	*65Ω	Inf.	420K	
V20	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Cap *500K
V21	5U4G	Inf.	9K	Inf.	800Ω	Inf.	800Ω	Inf.	9K	
V22	10BP4	8K	12K	PIN 10 420K	PIN 11 110K	PIN 12 8K				

* Measured from Pin 8 of V21

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms.
2. Sockets connections are shown as bottom views.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at maximum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.

OLYMPIC
MODEL TV-922

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: OLYMPIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amp.	6J6	6J6	79P	
V1B	RF Amp.	6J6	6J6	79P	
V2A	RF Amp.	6AU6	6AU6	79P	
V2B	Mixer	6J6	6J6	79P	
V3B	Mixer	6J6	6J6	79P	
V3A	Converter	6J6	6J6	79P	
V5A	IF Sec.	6J6	6J6	79P	
V5B	IF Sec.	6J6	6J6	79P	
V4	1st Video IFAmp	6AU6	6AU6	79D	
V7	2nd Video IFAmp	6AU6	6AU6	79D	
V6A	3rd Video IFAmp	6AU6	6AU6	79D	
V6B	3rd Video IFAmp	6AK5	6AK5	79D	
V5A	4th Video IFAmp	6AU6	6AU6	79D	
V7B	4th Video IFAmp	6AK5	6AK5	79D	
V-	Video Det., Clamper	6AL5	6AL5	6BT	
V-	Video Amp.	12AU7	12AU7	9A	
V10A	1st Sound IFAmp	6BA6	6BA6	79K	
V10B	1st Sound IFAmp	6AU6	6AU6	79K	
V11A	Limiter	6AU6	6AU6	79K	
V11B	Limiter	6AK5	6AK5	79B	
V12A	Limiter	6AU6	6AU6	79D	
V12	Discriminator	6AL5	6AL5	6BT	
V13	1st AF & Bias Clamper	6AT6	6AT6	79T	
V14	Audio Output	6R6GT	6R6GT	7S	
V15	Sync. Amp. and Sync. Sep.	6SN7GT	6SN7GT	8BD	
V16	Vert. Osc. and Vert. Output	6SN7GT	6SN7GT	8BD	
V17	Horiz. AFC and Horiz. Osc.	6SN7GT	6SN7GT	8BD	
V18	Horiz. Output	6BG6G	6BG6G	5BT	
V19	Damper	5Y4G	5Y4G	5L	
V20	H.V. Rectifier	1B3GT	1B3GT	3C	
V21	L.V. Rectifier	5U4G	5U4G	5T	
V22	Picture Tube	10BP4	10BP4		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: OLYMPIC PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	CO-1494					▬ Filter
C1B	40	150	"					▲ Bias Filter
C1C	150	150	"					▲ Vert. Output Cath.Byp.
C2A	40	450	CO-1497					■ Filter
C2B	10	350	"					▲ Vert. Output Decoup.
C3A	40	450	CO-1496		UP9H-6S7			■ Filter
C3B	10	450	"					▲ Filter
C4A	40	450	CO-1496					■ Filter
C4B	30	450	"					▲ Filter
C5A	300	300	"		UP7B-8G8			■ Hor. Cent. Bypass
C5B	1000	6	"					▲ Ver. Cent. Bypass Decoupling
C6	24	300	CO-1493 note 1					Fixed Trimmer Cer.
C7	8		"					Fixed Trimmer Cer.
C8	8		"					Main Filter "
C9	.1500		"					Ant. Coupling "
C10	.5		"					Ant. Coupling "
C11	5.0		"					Neutralizing "
C12	1.8		"					Neutralizing "
C13	1.8		"					RF Fil. Bypass "
C14	600		"					Mixer Grid Filter "
C15	1500		"					Mixer Decoupling "
C16	1500		"					Osc. Feedback "
C17	50	500	"	14e8-0003	SM5T3	MO.5-33	1FM-33	Video IF Coupling
C18	8.2		"	14e8-0006	SM5T5	MO.5-35	1FM-35	Decoupling Cer.
C19	8.2		"					Osc. Feedback "
C20	4.7		"					Osc. Fil. Bypass "
C21	500		"					Bias Filter "
C22	.25	400	CO-H-4254	P488-25		GT4P25	ST-4-25	TC-2 Bias Filter "
C23	270	1000	SC74A271K	1467-0015	1W5D15	MW.5-215	1FM-215	1st IF Decoupling Cer.
C24	270	1000	SC74A271K	"	"	"	"	IF Coupling "
C25	1500		CCR152M	1467-0015	1W5D15	MW.5-215	1FM-215	2nd IF Grid Filter Cer.
C26	1500		CCR152M	1467-0015	1W5D15	MW.5-215	1FM-215	2nd IF Decoupling Cer.
C27	270	1000	SC74A271K	"	"	"	"	IF Coupling "
C28	1500		CCR152M	1467-0015	1W5D15	MW.5-215	1FM-215	3rd IF Grid Filter "
C29	1500		CCR152M	1467-0015	1W5D15	MW.5-215	1FM-215	3rd IF Decoupling Cer.
C30	270	1000	SC74A271K	"	"	"	"	IF Coupling "
C31	50	500	RZ20A101M	1463-0001	5W5T1	MO.5-31	1FM-31	Fixed Trimmer Cer.
C32	1500		CCR152M	1467-0015	1W5D15	MW.5-215	1FM-215	4th IF Grid Filter Cer.
C33	270	1000	SC74A271K	"	"	"	"	4th IF Decoupling Cer.
C34	1500		CCR152M	"	"	"	"	IF Coupling ± 10%
C35	20	500	RZ20A100J	1469-00001	5R5Q1	MO8.5-41	MB-41	RF Bypass "
C36	.05	400	CO-H-4503	P488-05	GT4S5	ST-4-05	TM-15	Video Coupling
C37	.05	400	CO-H-4503	P488-05	GT4S5	ST-4-05	TM-15	Video Coupling
C38	.25	400	CO-H-4254	P488-25	GT4P25	ST-4-25	TC-2	Pic. Tube Cath. Bypass
C39	.25	400	CO-H-4254	P488-25	GT4P25	ST-4-25	TC-2	Bias Filter "
C40	1500		CCR-152M	1467-0015	1W5D15	MW.5-215	1FM-215	1st S. Cath. Bypass Cer.
C41	1500		CCR-152M	1467-0015	1W5D15	MW.5-215	1FM-215	1st S. Decoupling "
C42	.01	600	CO-H-6103	P688-01	G7S81	ST-6-01	TM-11	2nd S. Grid Filter
C43	1500		CCR152M	1467-0015	1W5D15	MW.5-215	1FM-215	2nd S. Screen Bypass Cer.
C44	1500		CCR152M	1467-0015	1W5D15	MW.5-215	1FM-215	2nd S. Decoupling "
C45	270	1000	SC74A271K	"	"	"	"	RF Bypass ± 10%
C46	.002	600	CO-H-6202	P688-002	G7S82	ST-6-002	TM-22	Audio Coupling
C47	.01	600	CO-H-6103	P688-01	G7S81	ST-6-01	TM-11	Audio Coupling
C48	.002	600	CO-H-6202	P688-002	G7S82	ST-6-002	TM-22	AF Plate Bypass
C50	.01	600	CO-H-6103	P688-01	G7S81	ST-6-01	TM-11	Audio Coupling
C51	.005	600	CO-H-6502	P688-005	G7S85	ST-6-005	TM-25	Output Plate Bypass
C52	.05	400	CO-H-4503	P488-05	GT4S5	ST-4-05	TM-15	Sync. Coupling
C53	100	500	RZ20A101M	1469-0001	5R5Y1	MO8.5-31	MB-31	Sync. Coupling ± 5%

PARTS LIST AND DESCRIPTIONS

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: OLYMPIC PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C54	500	1000	SC74A391K					Sync. Amp. Cath. Bypass
C55	600	600	CO-H-6302	P688-002	G7S82	ST-6-002	TM-22	Integrator Net.
C56	600	600	CO-H-6302	P688-005	G7S85	ST-6-005	TM-25	Integrator Net.
C57	005	600	CO-H-6502	P688-005	G7S85	ST-6-005	TM-25	Integrator Net.
C58	4700		CCR472K					Vert. Osc. Grid Cap. ± 5% Cer
C59	.47	400	CO-H-4254	P488-25	GT4P25	ST-4-25	TC-2	Vert. Coupling
C60	.1	1000	CO-C-X104	1064-1	TVC10P1	S7M-10-1	PX-11	Vert. Discharge
C61	1.0	1000	SC74A121K					Sync. Coupling ± 10%
C62	120	1000	SC74A121K					Fixed Trimmer ± 10%
C63	.002	600	CO-H-6202	P688-002	G7S82	ST-6-002	TM-22	Differentiator Net.
C64	.25	400	CO-H-4254	P488-25	GT4P25	ST-4-25	TC-2	AFC Filter
C65	.02	400	CO-H-4203	P488-02	G7S82	ST-4-02	TM-12	AFC Filter
C66	.01	1000	CO-C-X103					Sync. Osc. Grid Cap ± 5%
C67	2200	1000	SC74A222J					Hor. Discharge ± 5%
C68	.05	400	CO-H-4503	P488-05	GT4S5	ST-4-05	TM-15	AFC Plate Bypass
C69	200	1000	SC74A301K					Hor. Coupling ± 10%
C70	47	500	RO50A470K					Fixed Trimmer ± 10%
C71	.25	400	CO-H-4254	P488-25	GT4P25	ST-4-25	TC-2	Hor. Output Cath. Byp.
C72	.05	400	CO-H-4503	P488-05	G7S85	ST-4-05	TM-15	Hor. Output Screen Byp.
C73	.035	1000	CO-H-4353					Fixed Trimmer
C74	.1	1000	CO-C-X104	1064-1	TVC10P1	S7M-10-1	PX-11	Damper Filter
C75	500	1500	CO-1528					HV Filter
C76	5	1500	CO-1542					AFC Feedback
C77	.01	600	CO-H-6103	P688-01	G7S81	ST-6-01	TM-11	Line Filter
C78	.01	600	CO-H-6103	P688-01	G7S81	ST-6-01	TM-11	Line Filter
C79	270		Note 2					RF Coupling
C80	270		"					RF Coupling
C81	10		"					Fixed Trimmer
C82	10		"					Fixed Trimmer
C83	1500		"					Bias Filter
C84	1.5		"					Neutralizing
C85	1.5		"					Neutralizing
C86	1500		"					RF Decoupling
C87	2.2		"					RF Coupling
C88	4.7		"					RF Coupling
C89	68		"					RF Coupling
C90	22		"					Fixed Trimmer
C91	1500		"					Osc. Decoupling
C92	10		"					Fixed Trimmer
C93	4.7		"					Osc. Feedback
C94	4.7		"					Osc. Feedback
C95	1500		"					Mixer Decoupling
C96	1500		"					IF Coupling
C97	150		"					Fil. Bypass
C98	68		"					Fixed Trimmer Cer.
C99	9		Note 3					Fixed Trimmer Cer.
C100	1000		"					RF Fil. Bypass "
C101	120		"					RF Decoupling "
C102	1500		"					RF Coupling "
C103	1000		"					Conv. Fil. Bypass "
C104	10		"					Osc. Feedback "
C105	10		"					Osc. Grid Cap "
C106	1000		"					RF Bypass "

* Item C32 and 115 are contined into one unit obtainable under PRMS part No. CL-1472

Note 1. Items C7 to C22 inc. are used in RF tuner part No. CL-1633.
Note 2. Items C79 to C98 inc. are used in RF tuner part No. CL-1428.
Note 3. Items C99 to C106 inc. are used in RF tuner part No. CL-1677.

CONTROLS

ITEM No.	RATING: RESIST. OHMS	RATING: WATTS	REPLACEMENT DATA: OLYMPIC PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	PT-1479			Vert. hold control Dual Con.
R1B	5Ω	½				Horiz. hold control
R2A	500Ω	2	PT-1478			Brightness control Dual Con.
R2B	10Ω	½				Contrast control
R3A	1 Meg.	½	PT-1477	D13-137	M-63-Z	Volume control
R3B	Shaft		Not Req.	A	Not Req.	Attach to RAA Fer Instructions
R3C	Switch		Not Req.	A1	SW-4	Attach to RAA Fer Instructions
R4A	4MΩ	½	PT-1480	D11-114	M-19-S	Vert. Linearity control
R4B	Shaft		Not Req.	A	Not Req.	Attach to RAA Fer Instructions
R5	2.5 Meg.	½	PT-1481			Height control
R6	20Ω	2	PT-1482	W20X10	P-10-20CT	Vert. centering control tapped @ 10Ω
R7	20Ω	3	PT-1483	W-30	S8-30	Horiz. centering control.
R8	2250Ω	3	PT-1494	W-3000	S8-3000	Focus control

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: OLYMPIC PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE 10% UNLESS OTHERWISE SPECIFIED
R9	150Ω	½			Br.-Grn.-Br. RF Grid
R10	150Ω	½			Br.-Grn.-Br RF Grid
R11	10000Ω	½	RTS-1000		Br.-Blk.-Red Bias Network 20%
R12	10KΩ	½	RTS-10K		Br.-Blk.-Or. RF Coil Shunt 5%
R13	100KΩ	½	RTS-100K		Br.-Blk.-Yel RF Plate 20%
R14	10000Ω	½	RTS-1000		Br.-Blk.-Red RF Plate 20%
R15	560Ω	½	RTS-560Ω-5%		Grn.-Blue-Red Mixer Coil Shunt 5%
R16	1 Meg.	½	RTS-1 Meg		Br.-Blk.-Grn. Mixer Grid 20%
R17	10000Ω	½	RTS-1000		Br.-Blk.-Red Osc. Plate 20%
R18	10000Ω	½	RTS-1000		Br.-Blk.-Red Osc. Plate 20%
R19	10000Ω	½			Br.-Blk.-Yel. Osc. Grid
R20	100KΩ	½			Br.-Blk.-Yel. Osc. Grid
R21	47Ω	½			Yl.-Vi.-Blk. Osc. Cathode
R22	10000Ω	½	RTS-1000		Red-Red-Red Bias Voltage Divider
R23	6.8 Meg.	½	RLDs65k	RTS-6.8 Meg	Blue-Gray-Grn. Bias Voltage Divider
R24	90KΩ	½	RLDs35k	RTS-82k	Gray-Red-Or. Bias Voltage Divider
R25	10KΩ	½	RLD10J		Br.-Blk.-Or. Bias Voltage Divider 5%
R26	10K	½	RLD10J		Br.-Blk.-Or. 1st Video IF Grid 5%
R27	3ΩΩ	½	RLS390K		Or.-White-Blk. 1st Video IF Cathode
R28	100Ω	½	RLS101M		Br.-Red-Or. Bias Voltage Divider
R29	10000Ω	½	RLS102M	RTS-1000	Br.-Blk.-Red 1st Video IF Decoupling 20%
R30	10KΩ	½	RLS10J		Br.-Blk.-Or. 2nd Video IF Grid 5%
R31	10000Ω	½	RLS102M	RTS-1000	Br.-Blk.-Red Bias Network 20%
R32	3ΩΩ	½	RLS390K		Or.-White-Blk. 2nd Video IF Cathode
R33	10000Ω	½	RLS102M	RTS-1000	Br.-Blk.-Red 2nd Video IF Decoupling

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: OLYMPIC PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R34	4700Ω	½	RLS472J		Yl.-Vi.-Red 3rd Video IF Grid 5%
R35	1000Ω	½	RLS102M	RTS-1000	Br.-Blk.-Red Bias Network
R36	39Ω	½	RLS390K		Or.-White-Blk. 3rd Video IF Cathode
R37	2700Ω	½	RLS272J		Red-Vi.-Red " " Plate 5%
R38	1000Ω	½	RLS102M	RTS-1000	Br.-Blk.-Red " " " Decoupling 20%
R39	150Ω	½	RLS151K		Br.-Grn.-Br. 4th Video IF Cathode
R40	560Ω	½	RLS562J		Grn.-Blue-Red " " Plate 5%
R41	1000Ω	½	RLS102M	RTS-1000	Br.-Blk.-Red " " Decoupling 20%
R42	3300Ω	½	RLS332J	RTS-3300-5%	Or.-Org.-Red Video Det. Load 5%
R43	10KΩ	½	RLS103K	RTS-10K	Br.-Blk.-Or. Video Det. Load
R44	1 Meg.	½	RLS105M	RTS-1 Meg	Br.-Blk.-Grn. 1st Video Amp. Grid 20%
R45	1Meg.	½	RLS105M	RTS-1 Meg	Br.-Blk.-Grn. 2nd " " " "
R46	220KΩ	½	RLS224K	RTS-220K	Red-Red-Red 1st Video Amp. Plate
R47	33KΩ	½	RLS333K	RTA-3300	Or.-Or.-Red 2nd Video Amp. Plate
R48	100KΩ	½	RLS104K	RTS-1000	Br.-Blk.-Red 2nd Video Amp. Plate
R49	100KΩ	½	RLS104J	RTS-100k	Br.-Blk.-Yl. Voltage Divider
R50	82Ω	½	RLS823K		Gray-Red-Blk. 1st Sound IF Decoupling
R51	1820Ω	½	RLS182K	RTS-1200	Br.-Red-Red 1st Sound IF Decoupling
R52	470KΩ	½	RLS474M	RTS-470K	Yl.-Vi.-Yl. Limiter Grid 20%
R53	22KΩ	½	RLS223M	RTS-22K	Red-Red-Or. Limiter Screen Decoupling 20%
R54	10000Ω	½	RLS103M	RTS-1000	Br.-Blk.-Red Limiter Plate Decoupling 20%
R55	100KΩ	½	RLS104J	RTS-100K-5%	Br.-Blk.-Yl. Disc. Load 5%
R56	100KΩ	½	RLS104J	RTS-100K-5%	Br.-Blk.-Yl. Disc. Load 5%
R57	10 Meg.	½	RLS106M	RTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid 20%
R58	330KΩ	½	RLS334K	RTS-330K	Or.-Or.-Yl. 1st AF Plate
R59	470KΩ	½	RLS474M	RTS-470K	Yl.-Vi.-Yl. Output Grid 20%
R60	10000Ω	½	RLS102M	RTS-1000	Br.-Blk.-Red Output Decoupling 20%
R61	2200Ω	½	RLS222M	RTS-2200	Red-Red-Red Voltage Divider 20%
R62	10KΩ	½	RLS103M	RTA-10K	Br.-Blk.-Or. Voltage Divider 20%
R63	47Ω	½	RLS470J		Yl.-Vi.-Blk. Video Output Cathode
R64	15KΩ	½	RLS153M	RTA-15K	Br.-Grn.-Or. Sync. Amp. Plate 20%
R65	1 Meg.	½	RLS105M	RTA-1 Meg.	Br.-Blk.-Grn. Sync. Amp. Grid 20%
R66	3.9 Meg.	½	RLS395K	RTS-3.9 Meg.	Or.-White-Grn. Sync. Sep. Grid 20%
R67	680KΩ	½	RLS684M	RTS-680K	Blue-Gray-Red Sep. Cathode 20%
R68	22KΩ	½	RLS223M	RTS-22K	Red-Red-Or. Integrator Network 20%
R69	820KΩ	½	RLS824K	RTS-820K	Gray-Red-Red " " "
R70	82KΩ	½	RLS823K	RTS-820K	Gray-Red-Red " " "
R71	1.5 Meg.	½	RLS155M	RTA-1.5 Meg.	Br.-Grn.-Grn. Voltage Divider Network
R72	6.8KΩ	½	RC06S5K	RTS-6.8 Meg.	Blue-Gray-Grn. " " "
R73	100KΩ	½	RLS104K	RTS-100K	Br.-Blk.-Yl. " " "
R74	1.5KΩ	½	RLS152K	RTA-1.5K	Br.-Grn.-Grn. Vert. Osc. Grid 5%
R75	560Ω	½	RLS561K	RTS-560	Grn.-Blue-Yl. Vert. Output Cathode
R76	2.2 Meg.	½	RLS225M	RTA-2.2 Meg.	Red-Red-Grn. Vert. Output grid 20%
R77	33KΩ	½	RLS333K	RTS-3300	Or.-Or.-Red Vert. Osc. Sep. & Integrator 20%
R78	10KΩ	½	RLS103K	RTS-10K	Br.-Blk.-Or. Vert. Osc. Sep. & Decoupling 20%
R79	560Ω	½	RLS561K	RTS-560	Grn.-Blue-Br. Vert. Deflection Coil Shunt 5%
R80	56Ω	½	RLS560K	RTS-56	Grn.-Blue-Blk. Vert. Deflection Coil Shunt 5%
R81	680Ω	½	RLC681K	RTA-680	blue-Gray-Br. Focus Coil Shunt
R82	680Ω	½	RLC681K	RTA-680	Blue-Gray-Br. Focus Coil Shunt
R83	68KΩ	½	RLC683K	RTA-68K	Blue-Gray-Or. Focus Coil Shunt
R84	150KΩ	½	RLB154K	RTS-150K	Br.-Grn.-Yl. Voltage Divider
R85	5.6 Meg.	½	RLC565K	RTA-5.6Meg.	Grn.-Blue-Grn. Voltage Divider
R86	560KΩ	½	RLB564J	RTS-560K-5%	Grn.-Blue-Yl. Horiz. AFC Grid 5%
R87	820KΩ	½	RLB824K	RTS-820K	Gray-Red-Red-Horiz. AFC Filter
R88	180KΩ	½	RLB184K	RTS-180K	Br.-Gray-Yl. Horiz. AFC Cathode
R89	100KΩ	½	RLC104J	RTA-100K-5%	Br.-Blk.-Yl. Horiz. AFC Cathode 5%
R90	100Ω	½	RLB101K		Br.-Blk.-Br. Horiz. Osc. Grid 5%
R91	10KΩ	½	RLB104K	RTS-10K	Br.-Blk.-Or. Horiz. Osc. Coil Shunt
R92	33KΩ	½	RLB333K	RTS-330K	Or.-Or.-Or. Voltage Divider 20%
R93	120KΩ	½	RLB124K	RTS-120K	Br.-Red-Yl. Voltage Divider
R94	270KΩ	½	RLC274K	RTA-270K	Red-Vi.-Yl. Voltage Divider
R95	12KΩ	½	RLC124K	RTA-12K	Br.-Red-Yl. Horiz. Osc. Plate
R96	10KΩ	½	RLB103K	RTS-10K	Br.-Blk.-Or. Filter
R97	47Ω	½	RLB470K		Yl.-Vi.-Blk. Parasitic suppressor 20%
R98	1 Meg.	½	RLB105M	RTS-1 Meg	Br.-Blk.-Grn. Horiz. Output Grid 20%
R99	82Ω	½	RLC823K		Gray-Red-Blk. Horiz. Output Cathode
R100	47000Ω	½	RLC473K	RTA-4700	Yl.-Vi.-Red Horiz. Output Screen
R101	560Ω	½	RLB561K	RTS-560	Grn.-Blue-Blk. Filter
R102	1 Meg.	½	RLC105M	RTA-1 Meg.	Br.-Blk.-Grn. H V Filter
R103	560KΩ	½	RLB564K	RTS-560K	Grn.-Blue-Yl. Voltage Divider
R104A	5102	20	RC16S5		Voltage Divider
R104B	5102	20	"		" "
R105A	100Ω	2	RC16S4	BT-2-100	" "
R105B	382	1	"		" "
R106	1800	1	"		" "
R106	39Ω	1	RTC390	BW-1-39	Or.-White-Blk.
R107	150Ω	½			Br.-Grn.-Br. RF Grid
R108	150Ω	½			Br.-Grn.-Br. RF Grid
R109	10000Ω	½	RTS-1000		Br.-Blk.-Red RF Filter
R110	47000Ω	½			Yl.-Vi.-Red RF Plate
R111	47000Ω	½			Yl.-Vi.-Red RF Plate
R112	10000Ω	½	RTS-1000		Br.-Blk.-Red Decoupling
R113	10000Ω	½	RTS-1000		Br.-Blk.-Red Mixer Decoupling
R114	1 Meg.	½			Br.-Blk.-Grn. Mixer Grid Shunt
R115	1 Meg.	½			Br.-Blk.-Grn. Mixer Grid
R116	47Ω	½			Yl.-Vi.-Blk. Osc. Cathode
R117	47000Ω	½			Yl.-Vi.-Red Osc. Plate
R118	47Ω	½			Yl.-Vi.-Blk. Osc. Cathode
R119	100KΩ	½			Br.-Blk.-Yl. Osc. Grid
R120	330KΩ	½			Br.-Blk.-Yl. Osc. Grid
R121	330KΩ	½			Or.-White-Red RF Grid 20%
R122	47KΩ	½	RTS-47K		Yl.-Vi.-Or. RF Grid 20%
R123	51000Ω	½			White-Br.-Red RF Coil Shunt 20%
R124	22000Ω	½	RTS-2200		Red-Red-Red Decoupling 20%
R125	10Ω	½			Br.-Blk.-Or. Osc. Grid 20%
R126	47000Ω	½			Yl.-Vi.-Red Osc. Plate Load 20%
R127	47KΩ	½			Yl.-Vi.-Red Mixer Grid
R128	22KΩ	½			Red-Red-Yl. Mixer Grid 20%
R129	10000Ω	½	RTS-1000		Br.-Blk.-Red Mixer Decoupling

Items R6 thru R21 and R129 used in tuner CL1633
Items R107 thru R120 used in tuner CL1428
Items R121 thru R128 used in tuner CL1677

OLYMPIC MODEL TV-922

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	OLYMPIC PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
T1	117VAC @ 1.94A	720VAC CT .250VDC	5VAC @ 3A	5VAC @ 2A	TR-1474	P-8153		P-3059†

† Drill new mounting holes.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE		REPLACEMENT DATA				NOTES
	PRI.	SEC.	OLYMPIC PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
T2	110Ω TAP @ 30Ω		TR-1475				Hor. Osc. Trans.
T3	160Ω	850Ω	TR-1473	A-8111	TV-24A88	A-3000	Vert. blocking Osc. Trans.
T4	300Ω TAP @ 130Ω	Sec. 1 0Ω Sec. 2. 7.5TAP @ .5Ω	TR-1492				Hor. output and HF Osc. Trans.
T5	530Ω	5.5Ω	TR-1343	A-8115	TV-24S86	A-3035	Vert. Output Trans.
T6A	12Ω		CL-1356	DY-1			Hor. Deflection Yoke
T6B	5Ω						Vert. Deflection Yoke
T7	350Ω		CL-1543	FC-10			Focus coil

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		OLYMPIC PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T8	6200Ω	3.7Ω	275Ω	.36Ω	TR-1506	A-3878	T22S47	A-2931	

SPEAKER

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	OLYMPIC PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.7Ω	SK-1521		46A1	
	CONE DIA.	V. C. DIA.				
SP2	4" x 6"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	OLYMPIC PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
L1	.250A	62Ω	2.6H	CK-1346	C-2325		C-2991§	§ Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	OLYMPIC PART No.	MEISSNER PART No.	
L2	Ant. Input Coil.	.2ΩCT				Used on tuner #CL-1633
L3	Interference trap coil.	0Ω				Used on tuner #CL-1633
L4	Interference trap coil.	0Ω				Used on tuner #CL-1633
L5	RF Coil-LF	0Ω				" " " "
L6	RF Coil-HF	0Ω				" " " "
L7	Mixer-LF	0Ω				" " " "
L8	Mixer-HF	0Ω				" " " "
L9	Osc. Coil LF	0Ω				" " " "
L10	Osc. Coil HF	0Ω				" " " "
L11	1st IF Coil	0Ω				" " " "
L12	1st Video IF	.3Ω		CL-1471		
L13	2nd Video IF	.3Ω		CL-1471		
L14	3rd Video IF	.3Ω		CL-1471		
L15	Sound IF trap	.1Ω	.1Ω	CL-1472		
L16	4th Video IF	.3Ω		CL-1471		
L17	Peaking Coil	2.5Ω		CL-1535		36 Microhenrys

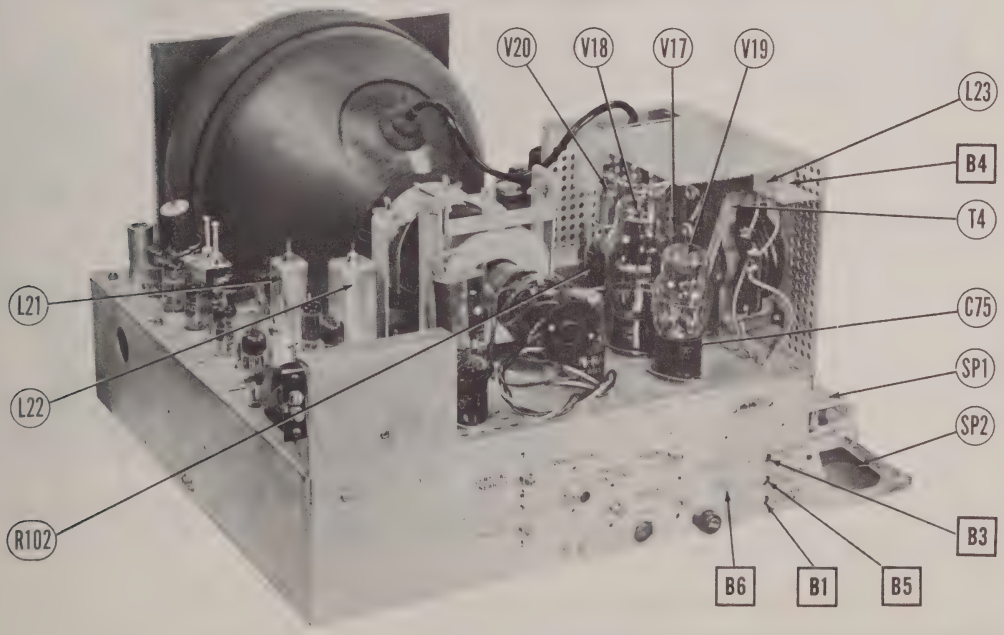
PARTS LIST AND DESCRIPTIONS (Continued)

COILS (CONT.)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA OLYMPIC PART No.	REPLACEMENT DATA MEISSNER PART No.	NOTES
L18	Peaking Coil	6Ω		CL-1537		180 Microhenrys, wound on 39KΩ resistor.
L19	Peaking Coil	6Ω		CL-1537		" " " " " "
L20	Peaking Coil	5Ω		CL-1536		120 Microhenrys, wound on 22KΩ resistor.
L21	1st sound IF	.2Ω	.2Ω	TR-1470		
L22	Sound disc. XFMR	.2Ω	.2Ω	TR-1469		
L23	Width control	.4Ω		CL-1502		
L24	Hor. Linearity control.	35Ω		CL-1503		
L25	Interference trap coil.	0Ω				Used on tuner #CL-1428
L26	Interference trap coil.	0Ω				Used on tuner #CL-1428
L27	Ant. Input coil.	.2ΩCT				" " " "
L28	IF tap coil.	0Ω				" " " "
L29	IF XFMR	0Ω	0Ω			" " " "
L30	Fil. choke	0Ω				" " " "
L31	RF section					Used on tuner #CL-1677
L32	Osc. section.					" " " "
L33	Fil. choke	0Ω				" " " "
L34	Fil. choke	0Ω				" " " "
L35	IF XFMR	0Ω	0Ω			" " " "
L36	IF grid coil	0Ω				Used on tuner #CL-1677 10.9 Microhenrys

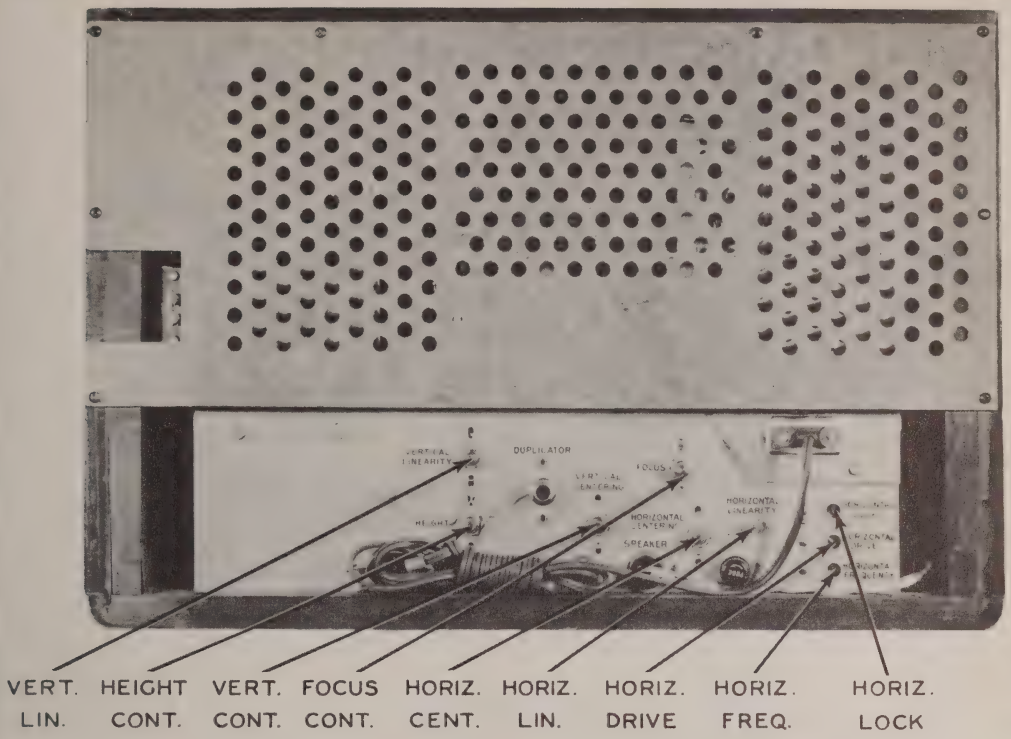
MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M1A	Tuner Assy.	CL-1633	
M1B	Tuner Assy.	CL-1428	
M1C	Tuner Assy.	CL-1677	
M2	Fuse	FU-1526	
M3	Ion Trap-PM	PP-1347	
	2nd Anode Connector Assembly	PP-1348	
	Safety Glass	PP-1527	
	Escutheon	ES-1522	Used with tuner #CL-1428
	Plastic Dial	DL-1647	Used with tuner #CL-1633
	Cabinet	CA-1467	
	Knob	KN-1516	Outer-Mahogany
	Knob	KN-1517	Inner-Mahogany
	Knob	KN-1518	Volume-Mahogany
	Knob	KN-1586	Outer-Tan
	Knob	KN-1587	Inner-Tan
	Knob	KN-1588	Volume-Tan
	Line cord	LC-1523	With inter lock socket

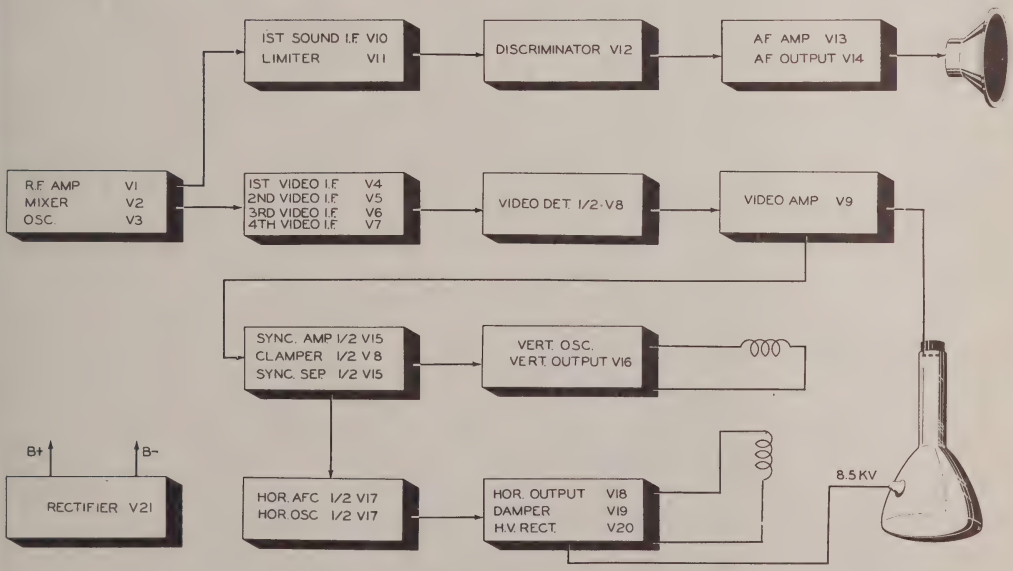


CHASSIS TOP VIEW

OLYMPIC
MODEL TV-922



CABINET-REAR VIEW



BLOCK DIAGRAM

HORIZONTAL OSC. AND LINEARITY ADJUSTMENTS

HORIZONTAL OSCILLATOR ALIGNMENT CHECK:

Tune in test pattern and turn horizontal hold control to extreme counter-clockwise position. Picture should remain in synchronization. Turn channel switch to another channel and then back to the original channel. Normally, the picture should be out of synchronization. Turn the control clockwise and the picture should slowly begin to synchronize and finally lock-in. This should occur when the control is approximately 90° from the extreme counter-clockwise position. The picture should remain in synchronization for another 90° in the clockwise direction of the control. At the extreme clockwise position the picture should again drop out of synchronization and 3½ to 4½ bars should be seen sloping downward to the right. If the receiver fails to hold synchronization during this check with the hold control at the extreme counter-clockwise position or fails to hold synchronization for at least 60° in the clockwise direction from the point when it drops into "sync." it will be necessary to align the horizontal oscillator circuit as follows:

(A) HORIZONTAL OSCILLATOR ALIGNMENT:

Turn horizontal hold control to extreme clockwise position. Tune in test pattern and adjust trimmer B1 until picture is out of sync. and shows 3½ to 4½ bars sloping downward to the right. If the trimmer has insufficient range, set it to its mid-position (one turn from tight) and adjust slug B2 until bars appear.

(B) HORIZONTAL LOCKING ALIGNMENT:

Turn the horizontal hold control to full counter-clockwise position. Switch to another channel and back to the original again.

Slowly turn horizontal hold control clockwise and note the least number of diagonal bars present just before picture syncs. If more than 4½ bars are present just before picture syncs. adjust "horizontal lock" trimmer B3 slightly clockwise. If less than 3½ bars are present adjust B3 slightly counter-clockwise and switch channel selector to another channel and back again. Recount bars present at the "lock-in" point. Repeat this procedure until 3½ to 4½ bars are present.

Repeat Steps (A) & (B) until conditions exist as outlined under "Horizontal Oscillator Alignment Check".

WIDTH, DRIVE & HORIZONTAL LINEARITY ADJUSTMENTS:

Turn width control B4 to maximum clockwise position. Adjust "horizontal drive" trimmer B5 for maximum brightness and linearity for right half of the picture. Readjust width control until picture fills the mask. Turn horizontal centering to align raster with the mask.

HEIGHT & VERTICAL LINEARITY ADJUSTMENTS:

Adjust the height control until picture fills mask vertically. Adjust the vertical linearity control until the test pattern is symmetrical from top to bottom.

Due to intraction between these two controls it is necessary to repeat the adjustments. Adjust the vertical centering control to align the picture with the mask.

DISASSEMBLY INSTRUCTIONS

1. Remove eight push-on type control knobs.
2. Remove eight Phillips head screws holding back cover. Remove cover. Remove speaker plug from rear of chassis.
3. Remove four 7/16" hex head machine bolts holding chassis. Remove chassis.
4. Remove four 11/32" hex nuts holding speaker. Remove speaker.

PHILCO MODEL 49-607

TRADE NAME	Philco, Models 49-605, 49-607
MANUFACTURER	Philco Corp., Tioga & "C" Streets, Philadelphia, Pennsylvania
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types 1T4 RF Amp., 1R5 Converter, 1T4 IF Amp., 1U5 Det.-AVC-AF, 3LF4 Power Output, 117Z3 Rectifier.
POWER SUPPLY RATING	105-120 Volts AC-DC or 9 Volts "A" Supply and 90 Volts "B" Supply in Pack Form. .15 Amp. @ 117 Volts AC or 54MA @ 9 Volts DC and 18MA @ 90 Volts DC.
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer, turn tuning cap. fully closed and set pointer 1-11/16" from extreme left edge of dial back plate. This is the calibration mark referred to in steps below.
Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Direct	High side to ext. ant. lead. Low side to chassis.	265KC	Tuning cap. fully closed.	Across voice coil	A1,A2 A3,A4	Turn A4 completely clockwise. Adjust for maximum output in order given.
2.		Loop	1600KC	5-1/16" from calibration mark	"	A5	Fashion loop of several turns of wire and radiate signal into loop of reciever. Adjust for maximum output.
3.		"	580KC	Tune for maximum output	"	A6	Rock tuning cap. & adjust for maximum output. Repeat steps 2 & 3 until no further improvement can be made.
4.		"	1500KC	"	"	A7,A8	Adjust for maximum output.

PHILCO
MODELS 49-605, 49-607

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DATE 3/49-#496-15 SET #58-FOLDER #15

PARTS LIST AND DESCRIPTIONS

PHILCO MODEL 49-607

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	1T4	1T4	6AR	
2	Converter	1R5	1R5	7AT	
3	IF Amp.	1T4	1T4	6AR	
4	Det.-AVC-AE	1U5	1U5	6BW	
5	Output	3LF4	3LF4	6BB	
6	Rectifier	11723	11723	4BR	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150	30-2560-4	[AF844D *	[UP42215*	[DY-402010-15*	[EL-313 *	Filter Orange
B	30	150		[PRS 25/50	[BR502	[M-50-25	[TA-50	Filter Red
C	10	150						Filter Brown
D	60	25						Cathode Bypass
8	.04	400	45-3500-2	494-05	GT6S4	ST-6-04	TC-14	Line Filter
9	.05	400	61-0122	484-05	GT4S5	ST-4-05	72P1	Line Isolation
10	.01	400	61-0120	484-01	GT4S1	ST-4-01	TC-11	RF Bypass Power Supply
11	.004	600	61-0179	684-004	GT6S4	ST-6-004	TC-24	Output Plate Bypass
12	.004	600	61-0179	684-004	GT6S4	ST-6-004	TC-24	Audio Coupling
13	.01	400	61-0120	484-01	GT4S1	ST-4-01	TC-11	" "
14	.05	200	61-0122	484-05	GT2S5	ST-4-05	TC-15	AF Screen Bypass
15	.05	200	61-0122	484-05	GT2S5	ST-4-05	TC-15	Decoupling
16	.1	200	61-0113	484-1	GT2P1	ST-2-1	TC-1	Filament Bypass
17	.05	200	61-0122	484-05	GT2S5	ST-4-05	TC-15	AVC Filter
18	.05	400	61-0122	484-05	GT2S5	ST-4-05	TC-15	Filament Bypass
19	.25	120	61-0125	484-25	GT2P25	ST-2-25	TC-2	" "
20	.05	200	61-0122	484-05	GT2S5	ST-4-05	TC-15	AVC Filter
21	.01	400	61-0120	484-01	GT4S1	ST-4-01	TC-11	" "
22	100	300	62-110009001	1468-0001	5W5T1	MO.5-31	1FM-31	RF Bypass
23	150	300	60-10155407	1468-00015	5W5T15	MO.5-315	1FM-315	Fixed Padder
24	1.5	300	30-1221-3					Neutralizing

*Install new mounting plate.

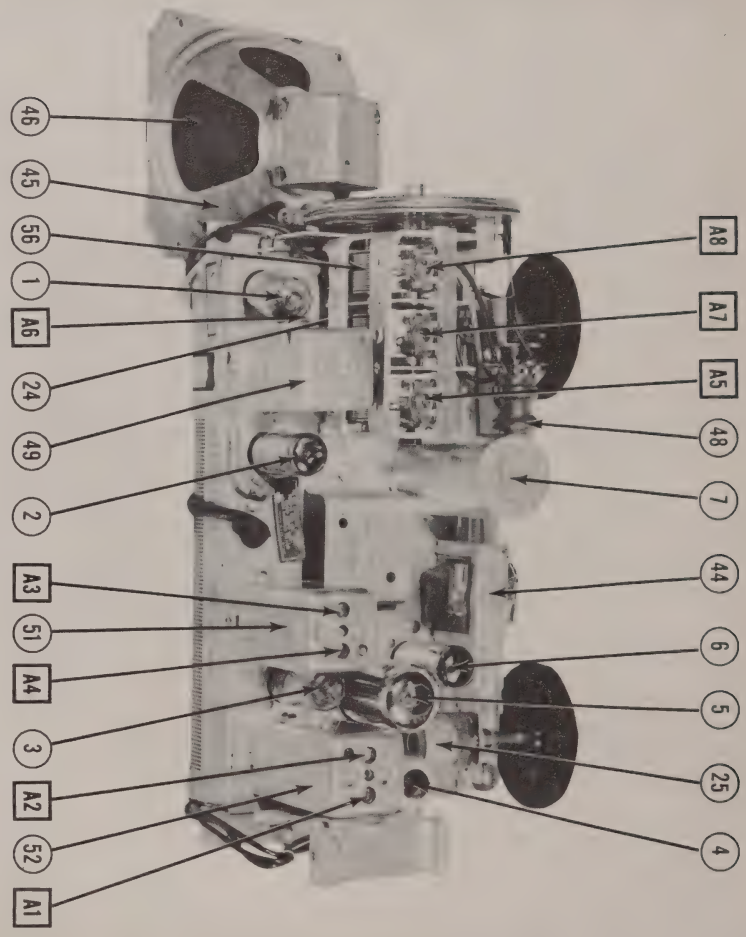
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25	1 Meg.	½	33-3536-43			Volume control and switch.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	IDENTIFICATION CODES	
26	4.7 Meg.	½	66-5473340	BTS-4.7 Meg.	Yl.-Vl.-Grn.	AVC Network
27	4.7 Meg.	½	66-5473340	BTS-4.7 Meg.	Yl.-Vl.-Grn.	AVC Network
28	100KΩ	½	66-4103340	BTS-100K	Br.-Blk.-Yl.	Osc.Grid.
29	2200Ω	½	66-2223340	BTS-2200	Red-Red-Red	Filament String
30	2200Ω	½	66-2223340	BTS-2200	Red-Red-Red	" "
31	10KΩ	½	66-3103340	BTS-10K	Br.-Blk.-Or.	Screen Dropping
32	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn.	AVC Network
33	100KΩ	½	66-4103340	BTS-100K	Br.-Blk.-Yl.	Diode Filter
34	270Ω	½	66-1273340	BW-½-270	Red-Vl.-Br.	Filament String
35	470Ω	½	66-1473340	BTS-470	Yl.-Vl.-Br.	" "
36	4.7 Meg.	½	66-5473340	BTS-4.7 Meg.	Yl.-Vl.-Grn.	AF Grid
37	10 Meg.	½	66-6103340	BTS-10 Meg.	Br.-Blk.-Blue	AF Screen
38	1.2 Meg.	½	66-5123340	BTS-1.2 Meg.	Br.-Red-Grn.	AF Plate Load
39	470KΩ	½	66-4473340	BTS-470K	Yl.-Vl.-Yl.	Output Grid
40	680Ω	½	66-1683340	BTS-680	Blue-Gray-Br.	Filament String
41A	875Ω	10	33-3431-4			Filament Dropping
B	875Ω	10				" "
C	60Ω	10				Surge Limiter
42	2200Ω	½	66-2223340	BTS-2200	Red-Red-Red	Filter
43	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl.	Line Isolation

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
44	11KΩ CT	3.3Ω	460Ω	.4Ω	32-8259	A-3879	T28847	A-2932	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.				
45	PM	3.3Ω	36-1598-1			
	CONE DIA.	VC DIA.				
46	4"X6"	5/16"				

R F COILS

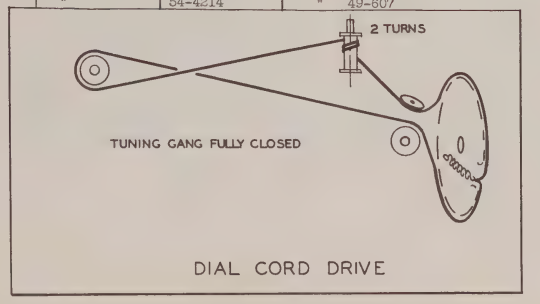
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
47	Loop Ant.		1.8Ω	32-4080		
48	Loop Loading Coil	32Ω	1Ω	32-3972	14-1056	
49	RF Coil	82Ω	4Ω	32-4210		
50	OSC Coil	1.8Ω	5.5Ω	32-4095-1	14-1060 Ⓣ	Ⓣ Add 50 MMF Cap. from high side of tuning Cap. to OSC grid.
51	Input IF	36Ω	34Ω	32-3970	16-6658	
52	Output IF	38Ω, 2Ω ‡		32-3971-2		‡ Feed back winding.
53	RF Choke		9.5Ω	32-4007		

BATTERIES

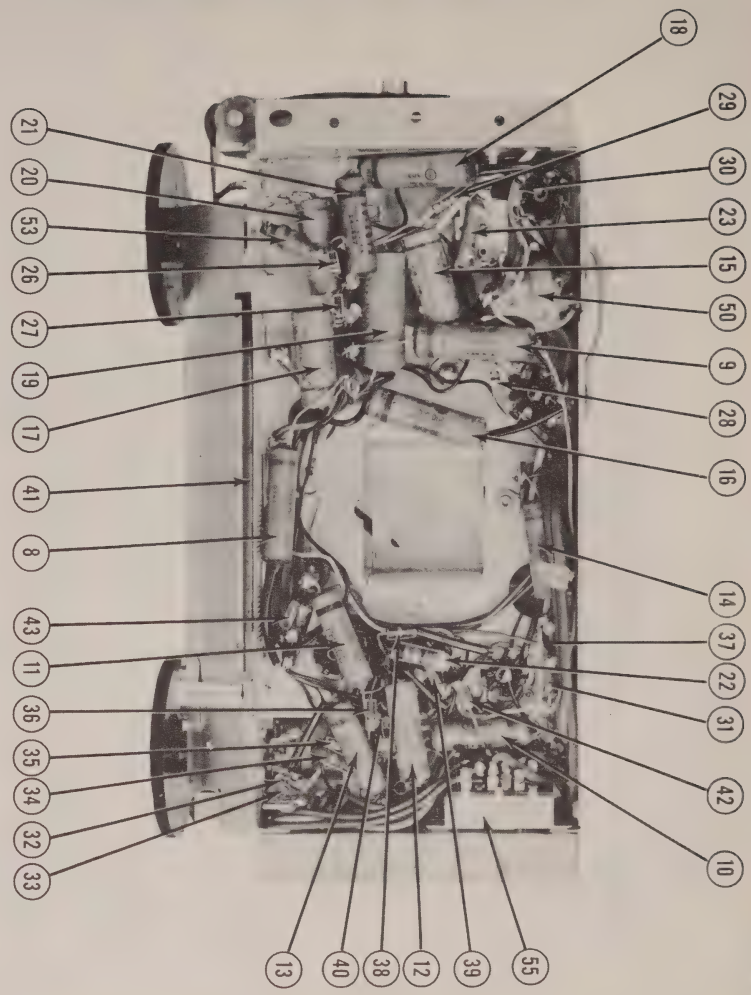
ITEM No.	VOLTAGE	PHILCO PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
54	9V"A" 90V"B"	P-841A			753			F6A60	

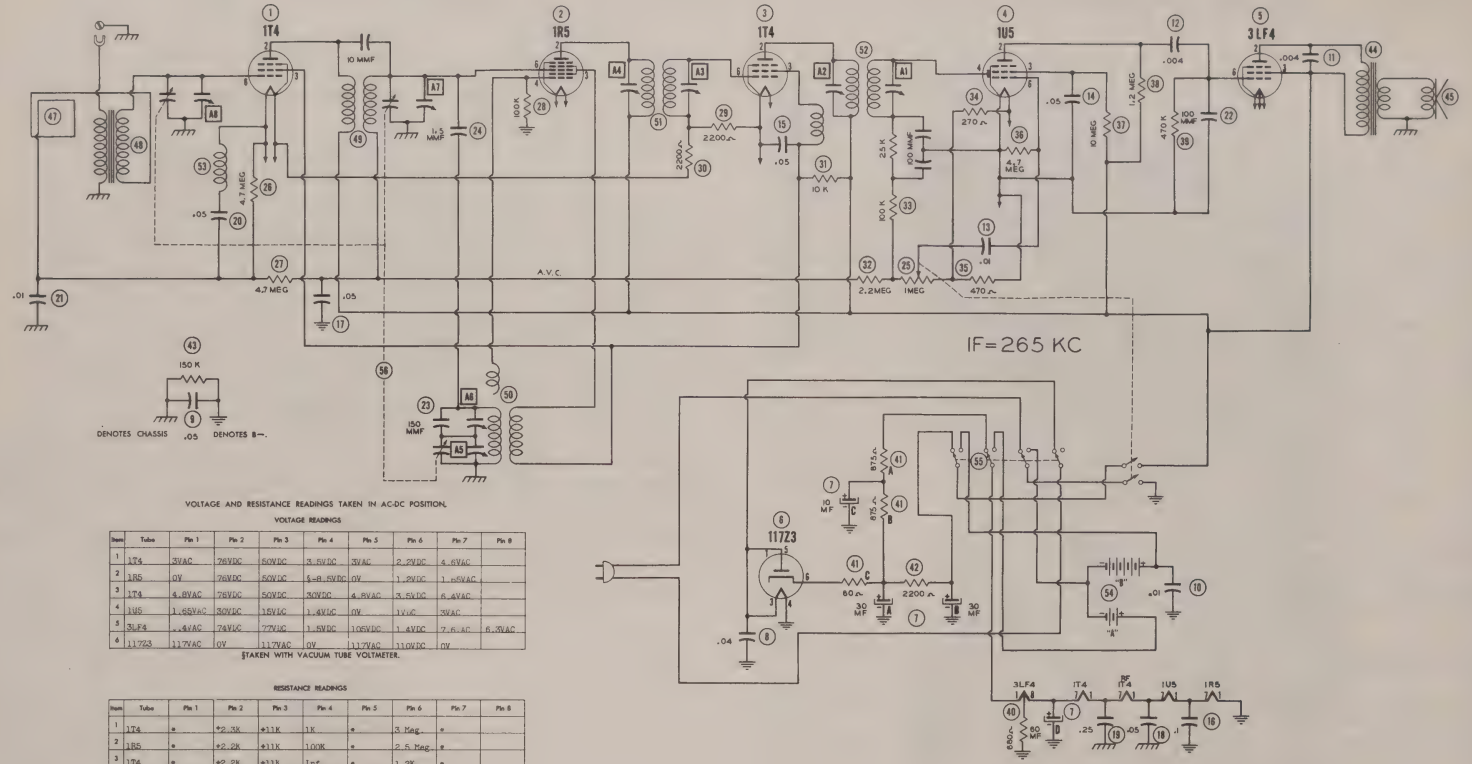
MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
55	Switch	42-1821	AC/DC-Batt.
56	3 Gang Var.Cap.	31-2689	(26-434MMF) each section
	Cabinet	10726	Model 49-605
	"	10647E	" 49-607
	Dial Scale	54-5031	" 49-605
	" "	27-5891	" 49-607
	Dial Pointer	56-5630-4FCP	" 49-605
	" "	76-2027	" 49-607
	Knob	54-4627	" 49-605
	"	54-4214	" 49-607



CHASSIS—BOTTOM VIEW





VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1T4	3VAC	76VDC	50VDC	3.5VDC	3VAC	2.2VDC	4.6VAC	
2	1R5	0V	76VDC	50VDC	5-8.5VDC	0V	1.2VDC	1.65VAC	
3	1T4	4.8VAC	76VDC	50VDC	30VDC	4.8VAC	3.5VDC	6.4VAC	
4	1U5	1.65VAC	30VDC	15VDC	1.4VDC	0V	1VDC	3VAC	
5	3LF4	4.4VAC	74VDC	77VDC	1.5VDC	105VDC	1.4VDC	7.6 AC	6.3VAC
6	117Z3	117VAC	0V	117VAC	0V	117VAC	110VDC	0V	

*TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1T4	∞	2.3K	11K	1K	∞	3 Meg.	∞	
2	1R5	∞	2.2K	11K	100K	∞	2.5 Meg.	∞	
3	1T4	∞	2.2K	11K	Inf.	∞	1.2K	∞	
4	1U5	∞	1.2 Meg.	10 Meg.	1 Meg.	∞	5 Meg.	∞	
5	3LF4	∞	3K	2.2K	22Ω	2K	430K	∞	∞
6	117Z3	450Ω	Inf.	450Ω	0Ω	450Ω	2 K	Inf.	

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
◆ MEASURED FROM PIN 6 OF 117Z3

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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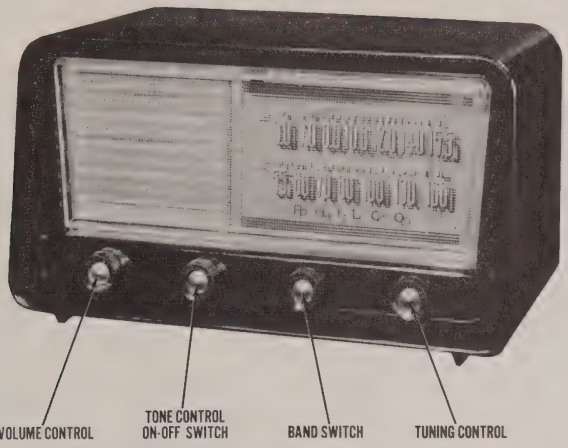
496-15

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



PHILCO MODEL 49-904

TRADE NAME	Philco, Model 49-904
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC-DC Operated 2 Band Superheterodyne Receiver with Loop Ant.
TUBES (SIX)	Types 14AF7 Converter, 12BA6 1st IF Amp., 12AU6 2nd IF Amp., 14B6 Det.-AVC-AF, 35A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY RATING	105-120 Volts AC. .23 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC **SHORT WAVE** 5.8-15.5MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer turn tuning cap. fully closed and set pointer 6 7/16" from extreme left edge of dial backplate. This is the calibration mark referred to below.
Use isolation transformer if available. If not connect a .1MFD cap. in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD	High side to rear stator of tuning cap. Low side to B-.	455KC	BC (Counter clock-wise)	Tuning Cap. fully closed	Across Voice Coil	A1,A2, A3,A4	Adjust for maximum output. If isolation transformer is not used reduce dummy antenna to .001MFD to reduce hum modulation.
2		Loop	580KC	"	1/2" from calibration mark.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		Loop	1600KC	"	4 1/4" from calibration mark.	"	A6	Adjust for maximum output.
4		Loop	15MC	SW (Clock-wise)	4" from calibration mark.	"	A7	Adjust for maximum output. Tune Signal Generator to 14.1MC. If signal is not heard, retune Signal Generator to 15MC and open A7 to next peak.
5		Loop	15MC	SW Clock-wise	Tune for maximum output.	Across Voice Coil.	A8	Close A8 completely, then adjust counter-clockwise to maximum output.
6		"	1500KC	BC	"	"	A9	Adjust for maximum output
7		"	580KC	"	"	"	A5	Rock Tuning Cap. & adjust A5 for maximum output. Repeat steps 3 through 7 until no further improvement can be made.

PHILCO
MODEL 49-904

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PARTS LIST AND DESCRIPTIONS

PHILCO MODEL 49-904

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14AF7	14AF7	8AC	
2	1st IF Amp.	12BA6	12BA6	7BK	
3	2nd IF Amp.	12AU6	12AU6	7BK	
4	Det.-AVC-AF	14B6	14B6	8W	
5	Power Output	35A5	35A5	6AA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	30-2575-24	PRS-A-150/30-40	EDL4415	DSB-403020-150	TA-303	Filter Orange
7B	30	150		PRS 150/30	BR3015			" Blue
7C	30	150						" Red
8	25	25	45-3001	PRS 25/25	BR252A	M-25-25	TA-25	Output Cathode Bypass
9	.04	400	45-3500-2	484-05	GT6S4	MPH-4-05	TC-14	Line Filter
10	.1	400	30-4644-1	484-1	GT4P1	ST-4-1	72P2	Line Isolation.
11	.01	400	61-0120	484-01	GT4S1	ST-4-01	TC-11	RF Bypass
12	.05	400	61-0122	484-05	GT4S5	ST-4-05	TC-15	" "
13	.04	400	45-3500-2	484-05	GT6S4	ST-6-04	TC-14	Rectifier Bypass.
14	.02	400	61-0108	484-02	GT4S2	ST-4-02	TC-12	Output Plate Bypass.
15	.01	400	61-0120	484-01	GT4S1	ST-4-01	TC-11	Audio Coupling.
16	.01	400	61-0121	484-01	GT4S1	ST-4-01	TC-11	" "
17	.006	400	45-3500-7	484-006	GT6D6	ST-6-006	TC-26	Tone Compensation.
18	.05	200	61-0122	484-05	GT2S5	ST-4-05	TC-15	2nd IF Decoupling.
19	.05	200	61-0122	484-05	GT2S5	ST-4-05	TC-15	1st IF Screen Bypass.
20	.001	600	45-3500-5	684-001	GT6D1	ST-6-001	TC-21	1st IF Cathode Bypass.
21	.1	400	61-0113	484-1	GT4P1	ST-4-1	TC-1	AVC Filter.
22	.01	400	61-0120	484-01	GT4S1	ST-4-01	TC-11	" "
23	.05	600	61-0122	684-05	GT6S5	ST-6-05	TC-15	Converter Decoupling.
24	.05	200	61-0122	484-05	GT2S5	ST-4-05	TC-15	" Cathode Bypass.
25	.01	400	61-0108	484-01	GT4S1	ST-4-01	TC-11	Tun.Cap.Isolation.See Note.
26	220	300	30-1224-20	1468-0002	SW5T2	MO.5-32	IFM-32	Output Grid Bypass.
27	220	300	30-1224-20	1468-0002	SW5T2	MO.5-32	IFM-32	IF Coupling Cer.
28	100	500	30-1225-2	1468-0001	SW5T1	MO.5-31	IFM-31	Converter Plate Bypass
29	220	300	30-1224-20	1468-0002	SW5T2	MO.5-32	IFM-32	Osc. Feedback. Cer.
30	220	300	30-1224-20	1468-0002	SW5T2	MO.5-32	IFM-32	Osc. Grid Cap. Cer.
31	100	500	30-1225-2	1468-0001	SW5T1	MO.5-31	IFM-31	RF Coupling.
32	10	300	30-1224-26	1468-00001	SW5Q1	MO.5-41	MS-41	Osc. Coupling. Cer.

Note. Some Models use 02MFD in this application.

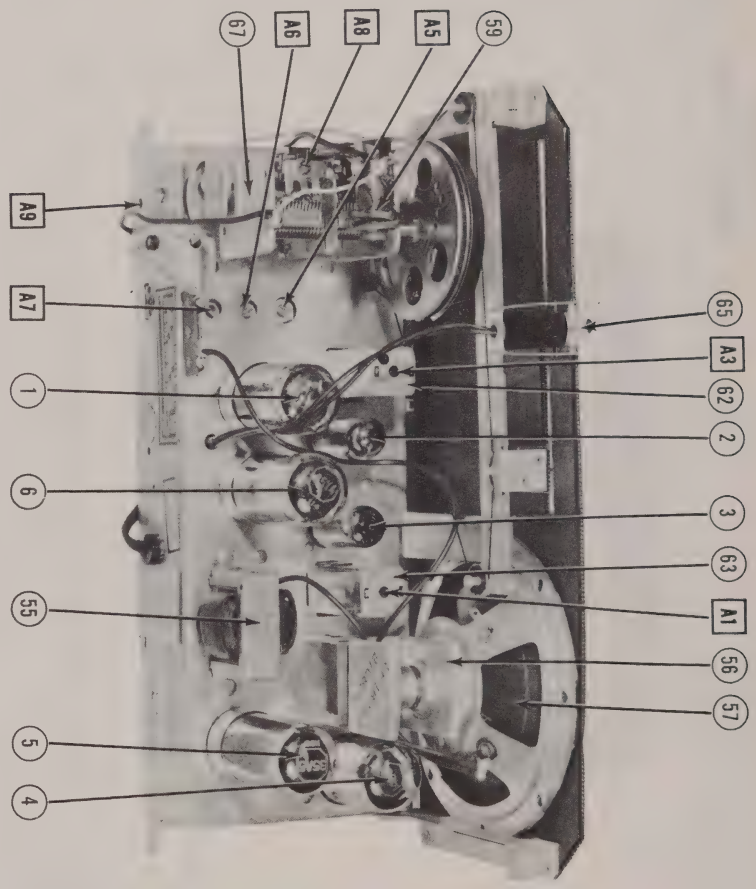
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
33A	500KΩ	½	33-5539-46	D13-133	M-60-Z	Volume Control.
B	Shaft		Not Req.	A	Not Req.	Attach to 33A per Instructions.
34	500KΩ	½	33-5538-35			Tone Control and Switch.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES	
35	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn.	Conv. Grid
36	2200Ω	½	66-2223340	BTS-2200	Red-Red-Red	" Plate Decoupling.
37	2200Ω	½	66-2223340	BTS-2200	"	" Cathode.
38	10KΩ	½	66-3103340	BTS-10K	Br.-Blk.-Or.	Osc. Grid.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA IRC PART No.	IDENTIFICATION CODES	
39	10KΩ	½	66-5103340	BTS-10K	Br.-Blk.-Or.	Osc. Plate.
40	220Ω	½	66-1223340	BW-½-220	Red-Red-Br.	1st. IF Cathode.
41	47KΩ	½	66-3473340	BTS-47K	Yl.-Vi.-Or.	1st IF Screen.
42	15KΩ	½	66-3153340	BTS-15K	Br.-Grn.-Or.	1st IF Plate Load.
43	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl.	2nd IF Grid.
44	220Ω	½	66-1223340	BW-½-220	Red-Red-Br.	" " Cathode.
45	1000Ω	½	66-2103340	BTS-1000	Br.-Blk.-Red	" " Decoupling.
46	47KΩ	½	66-3473340	BTS-47K	Yl.-Vi.-Or.	Diode Filter.
47	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn.	AVC Net.
48	3.3 Meg.	½	66-5333340	BTS-3.3 Meg.	Or.-Or.-Grn.	AF Grid.
49	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl.	" Plate Load.
50	470KΩ	½	66-4473340	BTS-470K	Yl.-Yl.-Yl.	Output Grid.
51	130Ω	½	66-1133340	BW-½-150	Br.-Or.-Br.	Output Cathode
52	1200Ω	½	66-2133340	BTS-1200	Br.-Red-Red.	Filter
53	220Ω	1	66-1224340	BW-1-220	Red-Red-Br.	Filter
54	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl.	Line Isolation.

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
55	2400Ω	3.5Ω	300Ω	.8Ω	32-8310	A-3876	T22S45	A-2928	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA PHILCO PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V.C. IMP.		ST-105 †		
56	PM	3.5Ω	36-1625	MOD. P5-X	5A15†	† Drill and tap Magnet Frame
	CONE DIA.	V.C. DIA.				
57	4 1/2"	5/16"				

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PHILCO PART No.	MEISSNER PART No.	
58	Loop Ant.		.5Ω			
59	AM Ant.Coil		1.2Ω	32-4033-8		
60	SW Ant.Coil		0Ω	32-3358		
61A	AM Osc.Coil		4.5Ω	32-4311		
61B	SW Osc.Coil		.1Ω			
61C	Osc.Grid Coupling Coil		.1Ω			
62	Input IF	7.5Ω	*18Ω	32-4258		*Tertiary winding 18Ω.
63	Output IF	14.5Ω	14Ω	32-4240-3		
64	Osc.Plate Chk.		1.5Ω	32-4143-4		

DIAL LIGHT

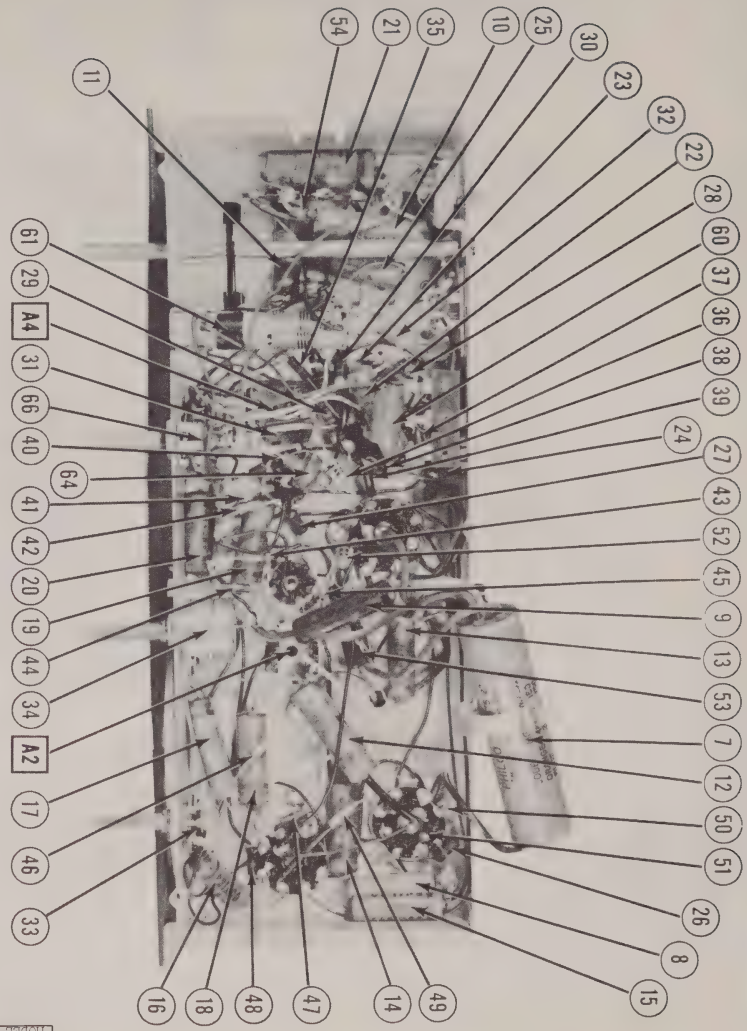
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA PHILCO PART No.		INSTALLATION NOTES
65	Bayonet	6-8V	0.15A	Brown	34-2068		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
66	Switch	42-1869	Band
67	2 Gang Var.Cap.	31-2727-4	(21-454MMF, 13-417MMF)
A5	Trimmer Strip.	31-6477-2	BC Osc. Adj. (Padder)
A6			" " "
A7			SW " "
A9	Trimmer	31-6474	BC Ant. Adj.
	Cabinet	76-4026	Includes Loop Ant.
	Dial Pointer	76-3972	
	Dial Scale	54-5012	

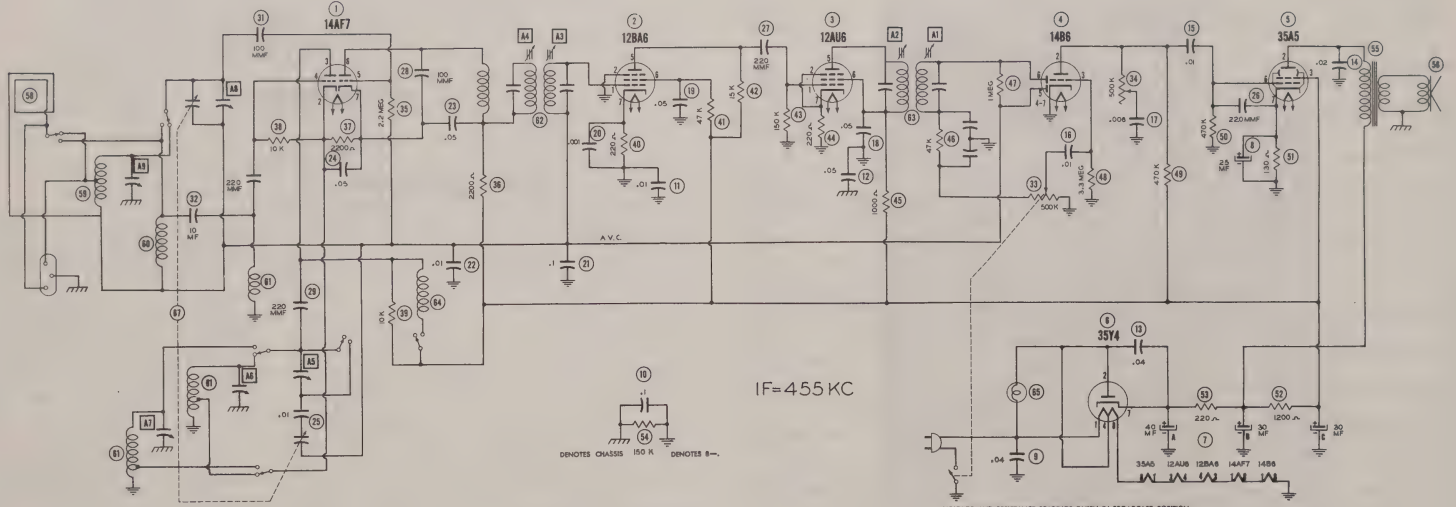
DATE 3/49 496-16 SET #58 FOLDER #16

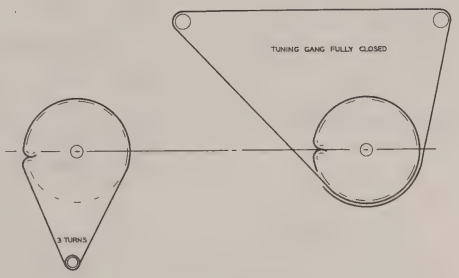
CHASSIS—BOTTOM VIEW



PHILCO MODEL 49-904

PHILCO MODEL 49-904





DIAL CORD DRIVE

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14AF7	28VAC	0V	68VDC	5-2.2VDC	-.1VDC	85VDC	4.8VDC	14VAC
2	12BA6	-.8VDC	0V	28VAC	42VAC	70VDC	60VDC	.4VDC	
3	12AU6	0V	3.1VDC	52VAC	42VAC	85VDC	85VDC	1.1VDC	
4	14B6	14VAC	56VDC	-.6VDC	0V	-.6VDC	-.7VDC	0V	0V
5	35A5	52VAC	100VDC	90VDC	0V	0V	0V	5.1VDC	88VAC
6	35Y4	117VAC	112VAC	90VDC	112VAC	90VDC	90VDC	126VDC	88VAC

TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14AF7	270	0Ω	70KΩ	10KΩ	.4 Meg	68KΩ	2.2KΩ	13Ω
2	12BA6	1.5 Meg	0Ω	27Ω	40Ω	76KΩ	110Ω	220Ω	
3	12AU6	150KΩ	220Ω	20Ω	40Ω	62KΩ	62KΩ	220Ω	
4	14B6	1Ω	630KΩ	3.3 Meg	0Ω	1.5 Meg	550KΩ	0Ω	0Ω
5	35A5	50Ω	60KΩ	60KΩ	0Ω	0Ω	470KΩ	130Ω	85Ω
6	35Y4	112Ω	60KΩ	60KΩ	110Ω	60KΩ	60KΩ	60KΩ	85Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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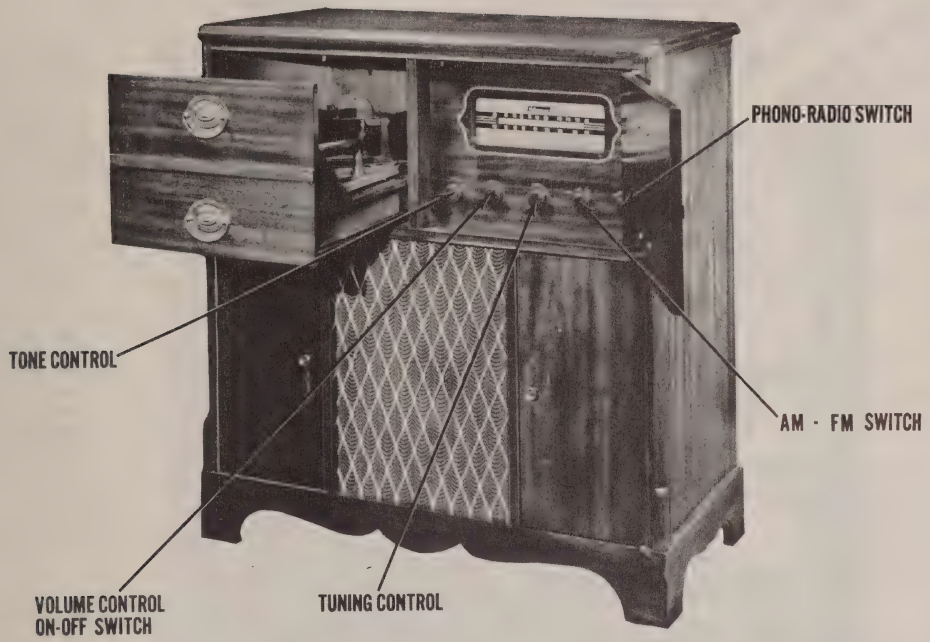
496-16

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



PHILHARMONIC
MODEL 349C

TRADE NAME	Philharmonic, Model 349-C		
MANUFACTURER	Philharmonic-Chicago, 1714 S. State St., Chicago, Illinois		
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Antenna.		
TUBES(SEVEN)	Types 12BA6 FM RF Amp., 12BE6 Converter, 12BA6 1st IF Amp., 12BA6 FM 2nd IF Amp., 12H6 FM Detector, 6AQ6 AM Det-AVC-AF, 50B5 Power Output.		
POWER SUPPLY	110-125 Volts AC	RATING	.27Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1620KC	FREQ. MOD.	88-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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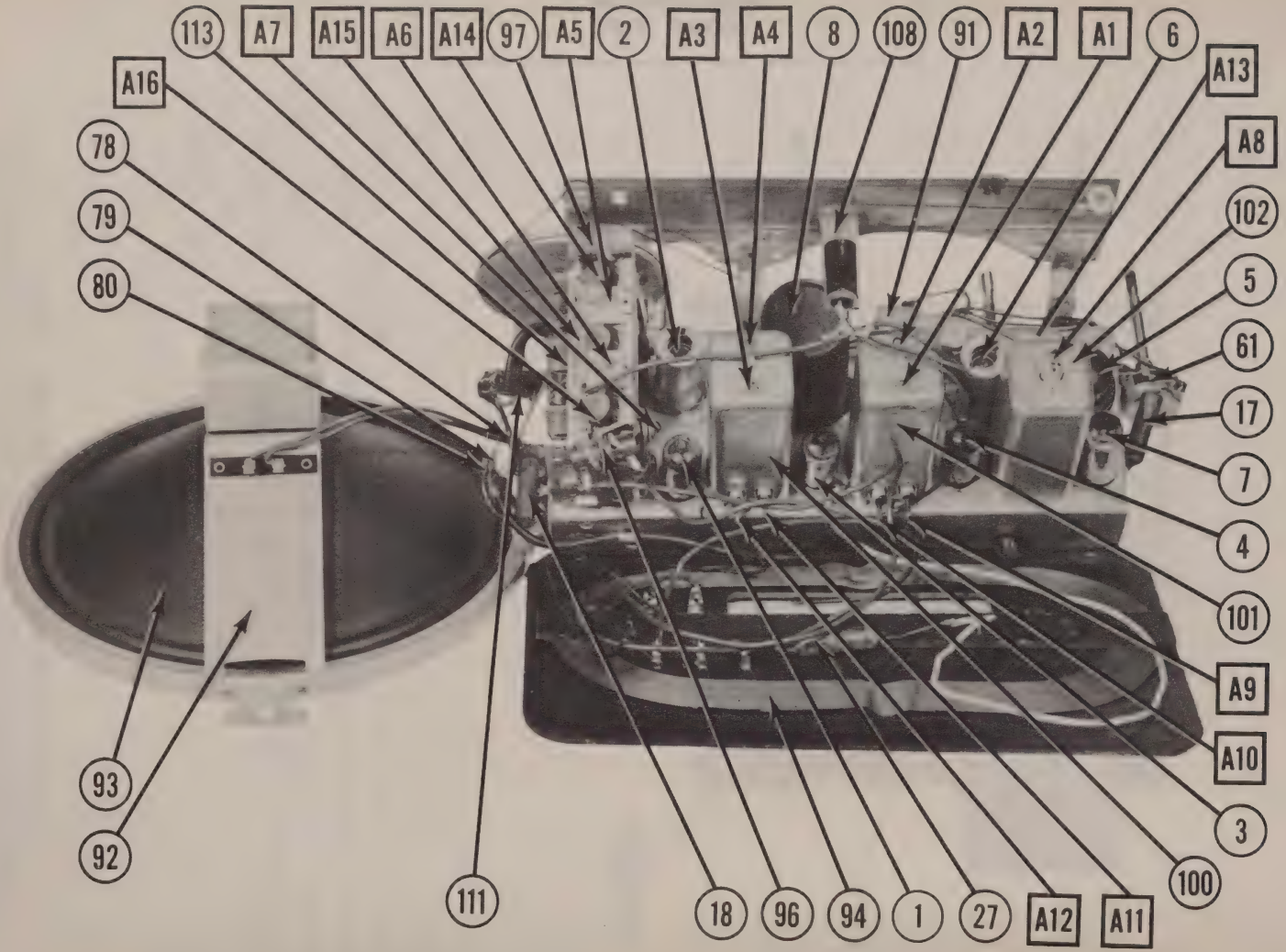
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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PHILHARMONIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	FM RF Amp.		12BA6	7BK	
2	Converter		12BE6	7CH	
3	1st IF Amp.		12BA6	7BK	
4	FM 2nd IF		12BA6	7BK	
5	FM Detector		12H6	7Q	
6	AM Det.-AVC-AF		6AQ6	7BT	
7	Power Output		50B5	7BZ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILHARMONIC PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8A	60	150		AF101010D4A	UP55515C	DY-419	EL-452	Filter ▲
8B	40	150						" ■
8C	40	150						" ●
8D	20	25						Cathode Bypass.
9	5	50		PRS 150/4	BR550	M-4-450	TA-55	Stabilizing Cap.
10	.02	400		484-02	GT4S2	ST-4-02	68P34	Line Filter
11	.05	400		484-05	GT4S5	ST-4-05	72P1	Line Isolation.
12	.002	600		684-002	GT6D2	ST-6-002	68P27	Line Isolation.
13	.05	400		484-05	GT4S5	ST-4-05	72P1	" "
14	.05	400		484-05	GT4S5	ST-4-05	68P35	Rectifier Bypass.
15	.01	400		484-01	GT4S1	ST-4-01	68P33	Output Plate Bypass.
16	.05	150		484-05	GT2S5	ST-4-05	68P35	Audio Coupling.
17	.01	400		484_01	GT4S1	ST-4-01	68P33	Tone Compensation.
18	.01	600		684-01	GT6S5	ST-6-01	68P33	" "
19	.2	400		484-2	GT4P2	ST-4-2	68P37	" "
20	.01	400		484-01	GT4S1	ST-4-01	68P33	RF Bypass.
21	.05	150		484-05	GT2S5	ST-4-05	68P35	Audio Coupling.
22	.08	400		484-075	GT6P1	ST-4-05	68P36	1st IF Decoupling.
23	.05	150		484-05	GT2S5	ST-4-05	68P35	" " Cathode Bypass
24	.02	150		484-02	GT2S2	ST-4-02	68P34	Bias Filter
25	.05	150		484-05	GT2S5	ST-4-05	68P35	AVC Filter
26	.05	400		484-05	GT4S5	ST-4-05	68P35	" "
27	.02	200		484-02	GT2S2	ST-4-02	68P32	Ext. Ant Isolation.
28	100	300		1468-0001	5W5T1	MO.5-31	IFM-31	AF Plate Bypass Cer.
29	2000	400		1467-002	1W5D2	MW.5-22	IFM-22	Audio Coupling Cer.
30	10000	300		1467-01	1D3S1	MW.3-11	IFM-11	RF Bypass Power Sup. Cer.
31	10000	300		1467-01	1D3S1	MW.3-11	IFM-11	Line Isolation. Cer.
32	10000	300		1467-01	1D3S1	MW.3-11	IFM-11	" " "
33	100	300		1468-0001	5W5T1	MO.5-31	IFM-31	Diode Load Cap. Cer.
34	10000	300		1467-01	1D3S1	MW.3-11	IFM-11	De-emphasis " "
35	5000	300		1467-005	1D5D5	MW.5-21	IFM-21	2nd IF Decoupling Cer
36	5000	300		1467-005	1D5D5	MW.5-21	IFM-21	AVC Filter Cer.
37	150	300		1468-00015	5W5T15	MO.5-315	IFM-315	RF Diode Filter Cer.
38	150	300		1468-00015	5W5T15	MO.5-315	IFM-315	" " " "
39	10000	300		1467-01	1D3S1	MW.3-11	IFM-11	RF Bypass Cer.
40	10000	300		1467-01	1D3S1	MW.3-11	IFM-11	RF Bypass Power Sup. Cer.
41	10000	300		1467-01	1D3S1	MW.3-11	IFM-11	Osc. Feedback. Cer.
42	10000	300		1467-01	1D3S1	MW.3-11	IFM-11	Fixed Padder. Cer.
43	47	300		1468-00005	5W5Q5	MO.5-45	IFM-45	Osc. Grid Cap. Cer.
44	33	300		1468-00004	5W5Q4	MO.5-43	IFM-44	" " " "
45	3	500						Osc. Feedback. Cer.
46	47	300		1468-00005	5W5Q5	MO.5-45	IFM-45	RF Bypass. Cer.
47	15	300		1468-00001	5W5Q2	MO.5-41	MS-415	RF Coupling Cer.
48	10	400		1468-00001	5W5Q1	MO.5-41	MS-41	RF Coupling. Cer.
49	470	300		1468-0005	5W5T5	MO.5-35	IFM-35	RF Bypass Power Sup. Cer.
50	150	300		1468-00015	5W5T15	MO.5-315	IFM-315	RF Cath. Bypass. Cer.
51	47	300		1468-00005	5W5Q5	MO.5-45	IFM-45	RF Coupling. Cer.
52	470	300		1468-0005	5W5T5	MO.5-35	IFM-35	RF Bypass. Cer.
53	10000	300		1467-01	1D3S1	MW.5-11	IFM-11	Line Isolation. Cer.
54	22	600		1468-000025	5W5Q2	MO.5-425	MS-42	Filament Bypass. Cer.
55	1500	300		1467-0015	1W5D15	MW.5-215	IFM-215	" " Cer.
56	1500	300		1467-0015	1W5D15	MW.5-215	IFM-215	" " Cer.
57	1500	300		1467-0015	1W5D15	MW.5-215	IFM-215	" " Cer.
58	1500	300		1467-0015	1W5D15	MW.5-215	IFM-215	" " Cer.
59	22	600		1468-000025	5W5Q2	MO.5-425	MS-42	AF Feedback. Cer.

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: PHILHARMONIC PART No.	REPLACEMENT DATA: MEISSNER PART No.
94	AM Loop Ant	.5Ω	1.4Ω		
95	FM Dipole Antenna		0Ω		
96	FM Ant.Coil		0Ω		
97	FM Recoil.		0Ω		
98	AM Osc.Coil		3.8Ω		
99	FM Osc.Coil		0Ω		
100A	AM 1st IF	18Ω	17Ω		
100B	FM 1st IF	1Ω	.4Ω		
101A	AM 2nd IF	13.5Ω	14Ω		
101B	FM 2nd IF	1.5Ω	.2Ω		
102	FM Disc. Transf'm'r	.6Ω	.1Ω		
103	RF Plate Chk.		.5Ω		
104	RF Choke		.5Ω		
105	RF Cath.Chk		.5Ω		
106	Fil. Choke		0Ω		
107	Fil. Choke		0Ω		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: PHILHARMONIC PART No.	REPLACEMENT DATA	INSTALLATION NOTES
108	Bayonet.	6-8V	0.25A	Blue			Type #44

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA: PHILHARMONIC PART No.	REPLACEMENT DATA: ASTATIC PART No.	REMARKS
109		L-70A	

MISCELLANEOUS

ITEM No.	PART NAME	PHILHARMONIC PART No.	NOTES
110	Switch		Band
111	Switch		Phono - Radio
112	Rectifier		Selenium
113	3 Gang Var.Cap		Tuning Cap.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	PHILHARMONIC PART No.	IRC PART No.	CLAROSTAT PART No.		
60A	1 Meg.	½		D11-137	AM-61-S		Volume Control.
B	Shaft			E	KSS-3		Attach to 60A per Instructions.
C	Switch			41	SW-A		" " " " "
61A	500KΩ	½		D13-133	AM-60-Z		Tone Control.
B	Shaft			E	KSS-3		Attach to 61A per Instructions.

RESISTORS

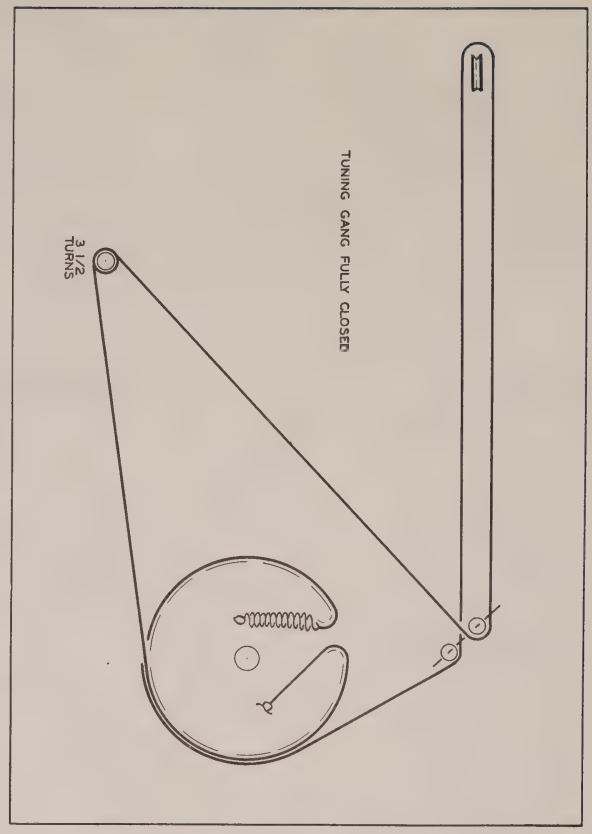
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	PHILHARMONIC PART No.	IRC PART No.		
62	470KΩ	½		BTS-470K	Yl.-Vl.-Yl.	RF Grid.
63	75Ω	½			Vl.-Grn.-Blk.	RF Cathode.
64	33Ω	½			Or.-Or.-Blk.	Parasitic Supp.
65	1500Ω	½		BTS-1500	Br.-Grn.-Red.	Conv. Screen.
66	22KΩ	½		BTS-22K	Red-Red-Or.	Osc. Grid.
67	75Ω	½			Vl.-Grn.-Blk.	1st IF Cathode.
68	680Ω	½		BTS-680	Blue-Gray-Br.	1st IF Decoupling.
69	33KΩ	½		BTS-33K	Or.-Or.-Or.	Diode Filter.
70	470KΩ	½		BTS-470K	Yl.-Vl.-Yl.	AVC Net.
71	470KΩ	½		BTS-470K	Yl.-Vl.-Yl.	" "
72	10Ω	½			Br.-Blk.-Blk.	2nd IF Cathode.
73	680Ω	½		BTS-680	Blue-Gray-Br.	" " Decoupling.
74	3300Ω	½		BTS-3300	Or.-Or.-Red	De-emphasis.
75	68KΩ	½		BTS-68K	Blue-Gray-Or.	Ratio Det. Diode Load.
76	470KΩ	½		BTS-470K	Yl.-Vl.-Yl.	AVC Net.
77	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn,	Bias.
78	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn.	AVC Network.
79	15KΩ	½		BTS-15K	Br.-Grn.-Or.	Tone Compensation.
80	15KΩ	½		BTS-15K	Br.-Grn.-Or.	Series Phono.
81	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue	AF Grid.
82	470KΩ	½		BTS-470K	Yl.-Vl.-Yl.	AF Plate Load.
83	470KΩ	½		BTS-470K	Yl.-Vl.-Yl.	Output Grid.
84	150Ω	½		BW-½-150	Br.-Grn.-Br.	Output Cathode.
85	2200Ω	½		BTS-2200	Red-Red-Red	Filter.
86	470Ω	2		BT-2-470	Yl.-Vl.-Br.	"
87	33Ω	1			Or.-Or.-Blk.	Surge Limiter.
88	22Ω	2		BW-2-22	Red-Red-Blk.	Line Dropping.
89	100KΩ	½		BTS-100K	Br.-Blk.-Yl.	Tone Compensation.
90	220KΩ	½		BTS-220K	Red-Red-Yl.	Line Isolation.

TRANSFORMER (OUTPUT)

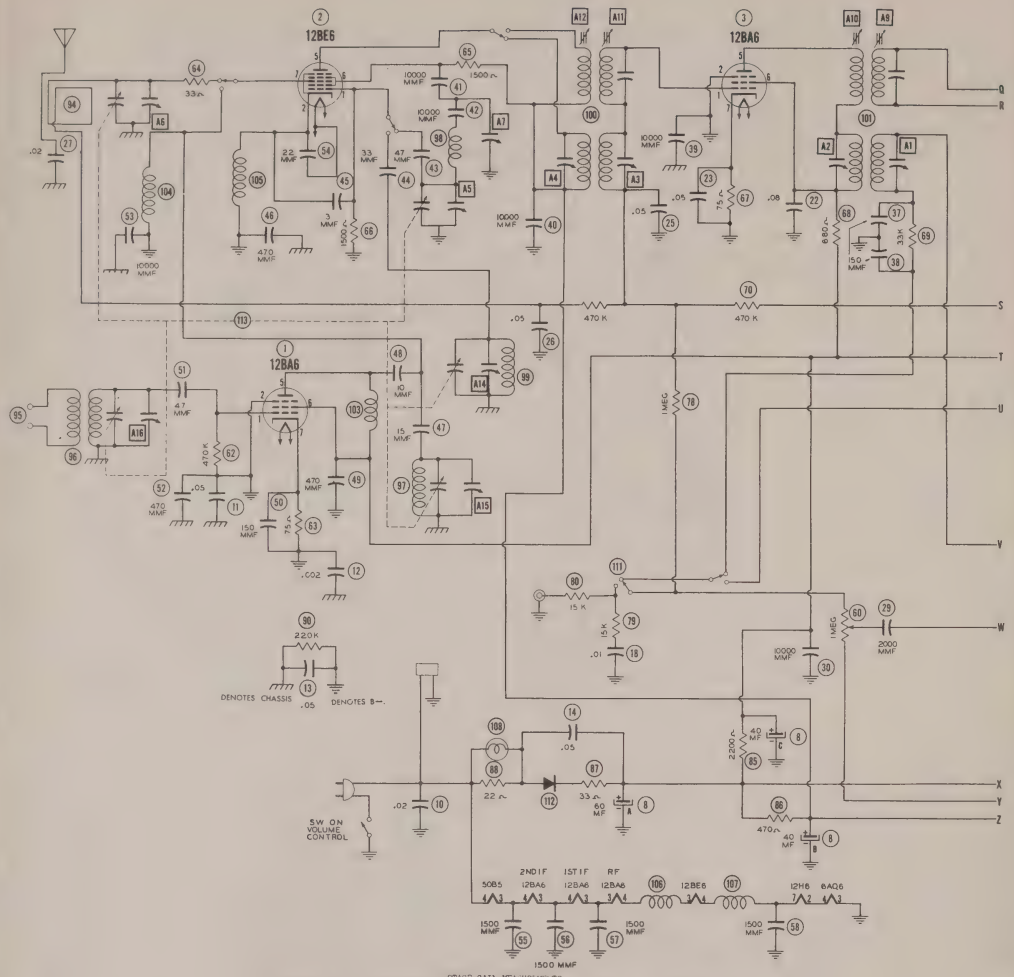
ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILHARMONIC PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
91	22500Ω	4.2Ω	320Ω	.65Ω		A-3876	T22845	A-2928	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILHARMONIC PART No.	JENSEN PART No.	QUAM PART No.	
92	FIELD	V.C. IMP.		ST-120 †		
	PM	4.2Ω		MOD P10-S	10A31	† Replace Output Transformer to match 6-8Ω V. C.
	CONE DIA.	V.C. DIA.				
93	9 3/8"	1"				



DATE 3/49 496-17 SET #68 FOLDER #17



STAGE GAIN MEASUREMENTS

ANT TO CONV GRID	15X	600KC
CONV GRID	38X	IN. 600KC OUT 455KC
IN IF	.8X	455KC
IF TUBE	130X	455KC
OUT IF	.9X	455KC
AUDIO	18X	400~
OUTPUT	25X	400~

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

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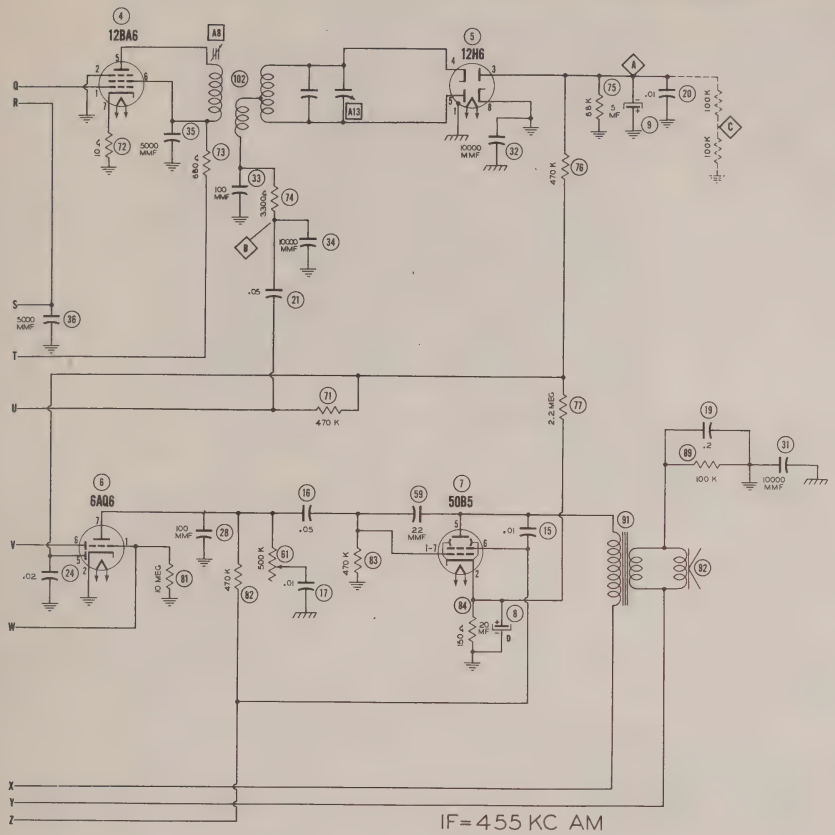

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.
RADIO-PHONO SWITCH IN RADIO POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BA6 ‡	-.1VDC	0V	43VAC	31VAC	100VDC	100VDC	1VDC	
2A	12BE6	§-6.4VDC	0V	31VAC	18VAC	90VDC	70VDC	-.2VDC	
2B	12BE6 ‡	§-2VDC	0V	31VAC	18VAC	85VDC	77VDC	0V	
3	12BA6	-.2VDC	0V	43VAC	56VAC	90VDC	90VDC	8VDC	
4	12BA6 ‡	-.6VDC	0V	55VAC	65VAC	90VDC	90VDC	.2VDC	
5	12H6 ‡	0V	6VAC	-.5VDC	-.2VDC	-.2VDC	0V	18VAC	0V
6	6AQ6	-.4VDC	0V	0V	6VAC	-.3VDC	-.2VDC	35VDC	
7	5085	0V	5.5VDC	65VAC	113VAC	113VDC	90VDC	0V	

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BA6	460KΩ	0Ω	4.4Ω	31Ω	21KΩ	21KΩ	75Ω	
2A	12BE6	22KΩ	0Ω	31Ω	20Ω	22KΩ	24KΩ	2.7 Meg.	
2B	12BE6	22KΩ	0Ω	31Ω	20Ω	22KΩ	24KΩ	0Ω	
3	12BA6	2 Meg.	0Ω	4Ω	56Ω	21KΩ	21KΩ	75Ω	
4	12BA6	2 Meg.	0Ω	56Ω	65Ω	21KΩ	21KΩ	10Ω	
5	12H6	250KΩ	7Ω	5KΩ	INF	INF	0Ω	2Ω	0Ω
6	6AQ6	10 Meg.	0Ω	0Ω	7Ω	1 Meg.	440KΩ	490KΩ	
7	5085	470KΩ	150Ω	65Ω	115Ω	80KΩ	22KΩ	470KΩ	

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer turn tuning cap fully closed and set dial pointer 2 3/32" from left edge of dial backplate. This is the calibration mark referred to below.
Use insulated alignment screwdriver for all adjustments.
Use isolation transformer if available. If not connect a .1MFD cap. in series with low side of signal generator and B-.

AM ALIGNMENT

Volume control should be set at maximum volume. Output of Signal Generator should be no more than necessary to obtain a satisfactory output reading.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1MFD	High side to pin 7(Grid) of 12BE6. Low side to B-.	455KC	AM (Counter Clock-wise)	Tuning Cap. fully open.	Across Voice Coil	A1,A2, A3,A4,	Adjust for maximum output. If isolation transformer is not used reduce dummy antenna to .001MFD to reduce hum modulation.
2		Loop	1600KC	"	7 7/32 from calibration mark.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	"	Tune for maximum output.	"	A6	Adjust for maximum output
4		"	600KC	"	"	"	A7	Rock tuning cap and adjust for maximum output. Repeat steps 2,3,and 4 until no further improvement can be made.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
5	.01MFD	High side to pin 1(Grid)of 1st FM IF tube. Low side to B-.	10.7MC (Frequency Modulated)	FM (Clock-wise)	Tuning Cap. fully open.	Vertical input to point (B) Ground to B-.	A8,A9, A10	Disconnect 5MFD Cap. from point A.Adjust A8,A9,and A10 for maximum amplitude, symmetry and coincedence of pattern per fig.1.
6	.01MFD	High side to pin 7(Grid)of 12BE6. Low side to B-.	"	"	"	"	A11,A12	Adjust for maximum amplitude, symmetry and coincidence of pattern per fig.1. Reconnect 5MFD cap to point A.
7	.01MFD	High side to pin 1(Grid)of 12BA6 1st IF tube. Low side to B-.	"	"	"	Vertical input to point (B) Ground to B-.	A13	Adjust for crossover of diagonal lines occurring at scope horizontal sweep line as per fig.2. Continue with FM RF alignment in step 9.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect 2 100KΩ (± 5%) resistors in series between point A and B- as shown on schematic. The junction of these resistors is point C.

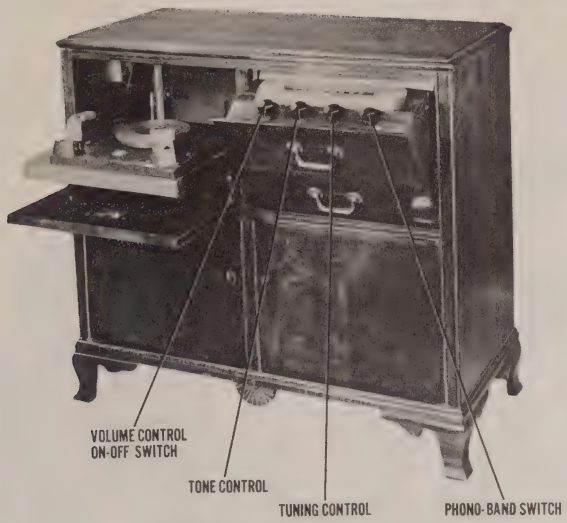
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5	.01MFD	High side to pin 1(Grid)of 12BA6 2nd IF tube(4). Low side to B-.	10.7MC (Unmod.)	FM (Clock-wise)	Tuning Cap. fully open.	DC Probe to point (A) Common to Chassis.	A8	Adjust for maximum deflection.
6	.01MFD	High side to pin 1(Grid)of 12BA6, 1st IF tube(3). Low side to B-.	"	"	"	"	A9,A10	" " "
7	.01MFD	High side to pin 7(Grid)of 12BE6. Low side to B-.	"	"	"	"	A11,A12	" " "
8	.01MFD	High side to pin 1(Grid)of 12BA6, 2nd IF tube(4). Low side to B-.	"	"	"	DC Probe to point (B) Common to point C.	A13	Adjust for Zero deflection Continue with FM RF alignment step 9.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
9	2-150Ω carbon res.	Each side in series with 150Ω carbon resistor and connect to FM Antenna terminals.	108MC	FM (Clock-wise)	7 3/32" from calibration mark.	Across Voice Coil	A14	Adjust for maximum output
10	"	" "	98MC	"	Tune for maximum output.	"	A15, A16	Rock Tuning Cap. and adjust for maximum output.

FIG.1

FIG. 2



RCA VICTOR MODEL 8V111

TRADE NAME	RCA Victor, Models 8V111, 8V112 (Ch. RC-616)
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, New Jersey
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Ant.
TUBES(ELEVEN)	Types 6J6 Converter, 6BA6 IF Amp., 6AU6 FM 2nd IF Amp., 6AL5 FM Ratio Detector, 6AV6 AM DET-AVC-Phase Inv. 6AV6 Noise Suppressor Amp., 6BA6 Reactance Amp., 6AU6 AF Amp., (2) 6V6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .57 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1600KC FREQ. MOD. 88-108MC

CRITICAL LEAD DRESS

1. Keep leads of cap (52) short.
2. Dress resistor (61) away from band switch and pin #5 of 6J6.
3. The ground lead of pin #2 of 6BA6 and 6AU6 (tubes 2 and 3) should be down against chassis. Its length is critical.
4. The AVC lead from resistor (77) to band switch should be dressed against chassis and away from 6AU6 (3) socket.
5. Cap (51) should have short leads and the color coded end of the cap, should go to the FM Osc. Coil (113). The cap. should be cemented down with polystyrene cement at the same time L2 is cemented.
6. The lead from the high side of the loop should be dressed away from tubes.
7. Lead from pin #2 of 6J6 to 1st IF transformer should be dressed against the chassis.
8. Connect cap (49) directly between tuning cap. and pin #1 of 6J6.
9. Make all FM leads as short as possible.
10. Dress lead from pin #5 of 6BA6 (2) to 2nd IF transformer against chassis.
11. Dress resistor (81) near chassis base.
12. Dress all AC leads away from volume control.
13. The lead from "FM" terminal of Antenna terminal strip to FM Antenna coil (11) should be dressed away from 6BA6 (2).
14. The taps on FM Osc. and Antenna coils are critical. FM Antenna Coil tap should be 3/4 turn from the ground end. FM Osc. coil tap should be 2 1/2 turns from tuning cap. terminal.
15. Dress capacitors (37) and (54) against the chassis with the shortest lead length possible.
16. The position of FM Osc. and Antenna coils is critical. FM Antenna coil should be midway between 6J6 tube and 1st IF transformer. The end of FM Osc. coil should be approximately 3/16" from 6J6.

RCA VICTOR
MODELS 8V111, 8V112

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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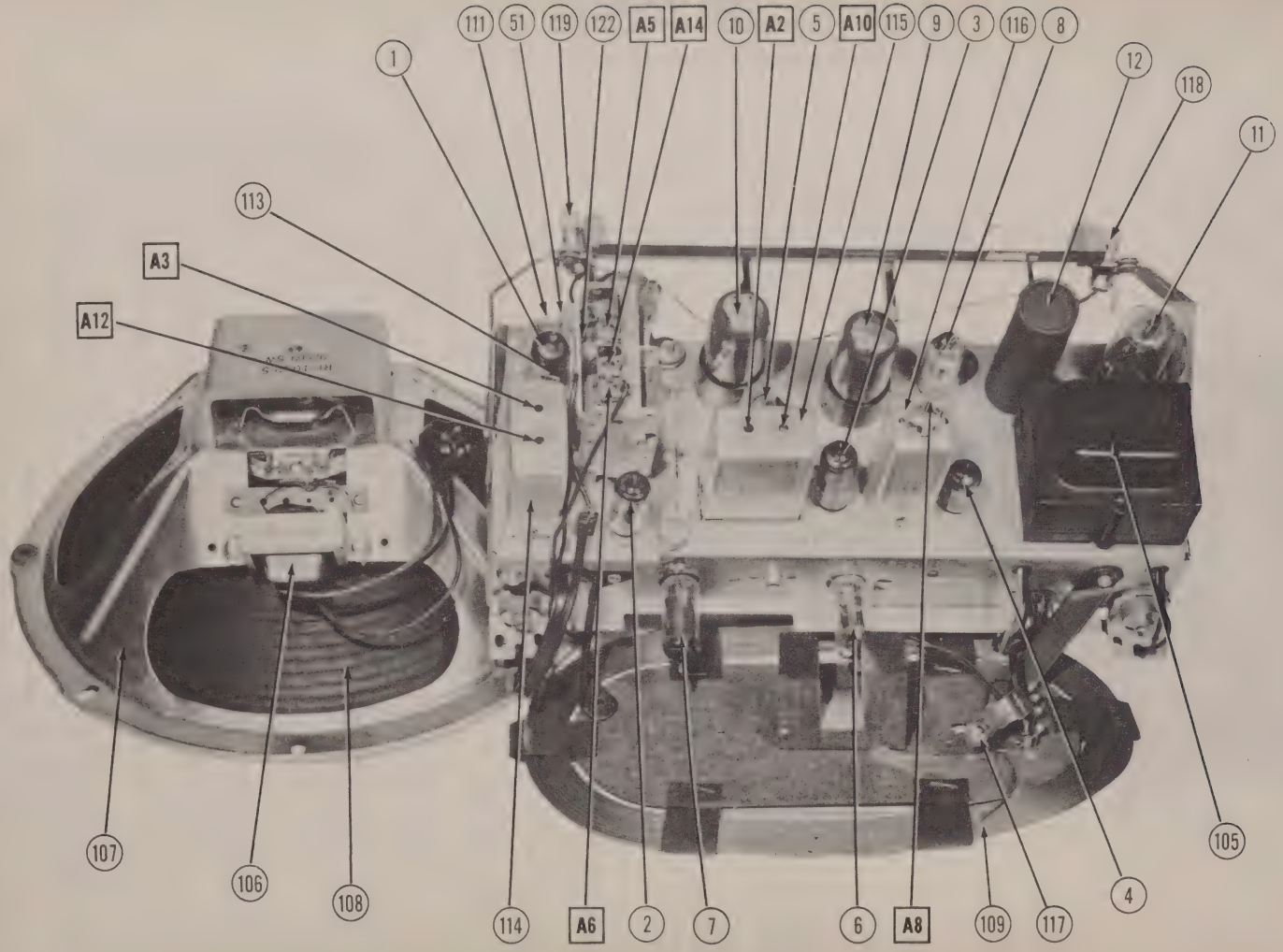

111
51
119
122
A5
A14
10
A2
5
A10
115
9
3
116
8
12
118
11
1
113
A3
A12
107
106
108
114
A6
2
7
6
A8
109
117
4
105

A
B
A1
A4
A7
A9
A11
A13

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6J6	6J6	6Q	
2	IF Amp.	6BA6	6BA6	7BK	
3	FM 2nd IF	6AU6	6AU6	7BK	
4	FM Ratio Det.	6AL5	6AL5	6BT	
5	AM. Det.-AVC-Phase Invertor.	6AV6	6AV6	7BT	
6	Noise Supp.Amp.	6AV6	6AV6	7BT	
7	Reactance Amp.	6BA6	6BA6	7BK	
8	AF Amp.	6AV6	6AV6	7BT	
9	Power Output.	6V6GT	6V6GT	7AC	
10	Power Output.	6V6GT	6V6GT	7AC	
11	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
12A	30	350	73372	AF64K4A	UP6BJ37	DY-311	D14611	Filter.
12B	30	300			BR202A			"
12C	20	25						Cathode Bypass.
13	2	50	73747	PRS 150/4	BR245	M-4-150	D7994	Stabalizing Cap.
14	.0035	1000	70646	1084-004	GT16D4	STM-16-004	TR-24	Output Plate Bypass.
15	.0035	1000	70646	1084-004	GT16D4	STM-16-004	TR-24	" " "
16	.02	400	73638	484-02	GT4S2	ST-4-02	TC-12	Audio Coupling.
17	.01	400	72827	484-01	GT4S1	ST-4-01	TC-11	" "
18	.01	400	72827	484-01	GT4S1	ST-4-01	TC-11	" "
19	.01	100	71923	484-01	GT2S1	ST-4-01	TC-11	" "
20	.003	100	73659	484- 003	GT6D3	ST-6-003	TC-23	" "
21	.003	400	72573	484- 003	GT6D3	ST-6-003	TC-23	Tone Compensation.
22	.015	200	72120	484-015	GT6S15	ST-4-01	TC-11	" "
23	.015	200	72120	484-015	GT6S15	ST-4-01	TC-11	" "
24	.005	200	71926	484- 005	GT6D5	ST-6-005	TC-25	RF Bypass.
25	.005	200	71926	484- 005	GT6D5	ST-6-005	TC-25	De-emphasis.
26	.005	100	71926	484-005	GT6D5	ST-6-005	TC-25	Bias Filter.
27	.005	100	71926	484-005	GT6D5	ST-6-005	TC-25	" "
28	.03	100	73639	484-03	GT4S3	ST-6-03	TC-13	Cathode Bypass.
29	.005	400	72791	484-005	GT6D5	ST-6-005	TC-25	2nd IF Decoupling.
30	.005	400	72791	484-005	GT6D5	ST-6-005	TC-25	" " Screen Bypass.
31	.005	100	71926	484-005	GT6D5	ST-6-005	TC-25	" " Cathode "
32	.005	400	72791	484-005	GT6D5	ST-6-005	TC-25	1st IF Decoupling.
33	.005	400	72791	484-005	GT6D5	ST-6-005	TC-25	" " Screen Bypass.
34	.05	100	72596	484- 05	GT2S5	ST-4-05	TC-15	AVC Filter.
35	.005	400	72791	484- 005	GT6D5	ST-6-005	TC-25	Converter Plate De-coupling.
36	.01	400	72827	484- 01	GT4S1	ST-4-01	TC-11	Oscillator Decoup.
37	.01	100	71923	484- 01	GT2S1	ST-4-01	TC-11	Filament Bypass
38	150	300	48125	1468- 00015	5W5T15	MO.5-315	1FM-315	AF Plate Bypass.Cer.
39	330	500	39640	1469-00035	5R5T3	MOS.5-33	MS-335	Det. Diode Load Cap. See note.
40	330	500	39640	1469-00035	5R5T3	MOS.5-33	MS-335	" " " "
41	150	300	48125	1468-00015	5W5T15	MO.5-315	1FM-315	Diode RF Filter. Cer.
42	150	300	48125	1468-00015	5W5T15	MO.5-315	1FM-315	" " " "
43	330	500	39640	1468-00035	5W5T3	MO.5-33	1FM-335	Audio Coupling.
44	220	300	71920	1468-00025	5W5T25	MO.5-325	1FM-325	Tone Compensation. "
45	330	500	39640	1468-00035	5W5T3	MO.5-33	1FM-33	Phase Shift Cap.
46	47	300	39042	1468-00005	5W5Q5	MO.5-45	1FM-45	Tone Compensation. "
47	39	300	73664	1468-00004	5W5Q4	MO.5-44	1FM-44	React. Tube Coup. "
48	2	300	73866					Compensating Cap. "
49	68	300	33103	1468-000075	5W5Q7	MOS.5-47	MS-47	FM Osc. Feedback. "
50	22	300	33101	1468-000025	5W5Q25	MO.5-425	MS-425	" " Grid Cap. "
51	56	300	73867					RF Bypass. Cer.
52	150	300	48125	1468-00015	5W5T15	MO.5-315	1FM-315	AM Osc. Grid Cap. "
53	1500	450	73748	1467-0015	1W5D15	MW.5-215	1FM-215	RF Coupling. "
54	47	300	39042	1468- 00005	5W5Q5	MO.5-45	1FM-45	Fil.Bypass. Cer.
123	150	300	48125	1468-00015	5W5T15	MO.5-315	1FM-315	Phase Inv.Plate Bypass. Cer.

Note. When either item 39 or 40 are replaced, replace both with capacitors of equal value.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
106	12KΩ CT	3.8Ω	600Ω CT	.4Ω	73636	A-3823	T22S87	A-2936	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	INSTALLATION NOTES
107	FIELD PM	V.C. IMP. 3.8Ω	73635	ST-102 † MOD P12-S	12A4 †	† Replace Output Transformer to match 6-8Ω voice coil.
108	CONE DIA. 12"	V.C. DIA. 1 1/2"				

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: MEISSNER PART No.
109	AM Loop Ant.	0Ω	4Ω	73611	
110	FM Dipole Ant		0Ω	71864	
111	FM Ant.Coil		0Ω	73918	
112	AM Osc.Coil	1Ω	7.2Ω	73744	
113	FM Osc.Coil		0Ω	73916	
114A	AM 1st IF	8Ω	8Ω	73745	
114B	FM 1st IF	.3Ω	.3Ω		
115A	AM 2nd IF	9Ω	9Ω	74019	
115B	FM 2nd IF	1Ω	1Ω		
116	Ratio Det.	1.2Ω	.3Ω	73743	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA:	NOTES
117	Bayonet	6-8V	0.2A	White	11765		Type #51
118	"	6-8V	0.2A	"	11765		Type #51
119	"	6-8V	0.2A	"	11765		Type #51

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
120	Switch	73608	Band-Phono.
121	"	73602	Tone
122	2 Gang Var.Cap.	73607	(17-519 MMF, 20-197 MMF)
	Dial Pointer	73710	
	Dial Scale	73628	Glass.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

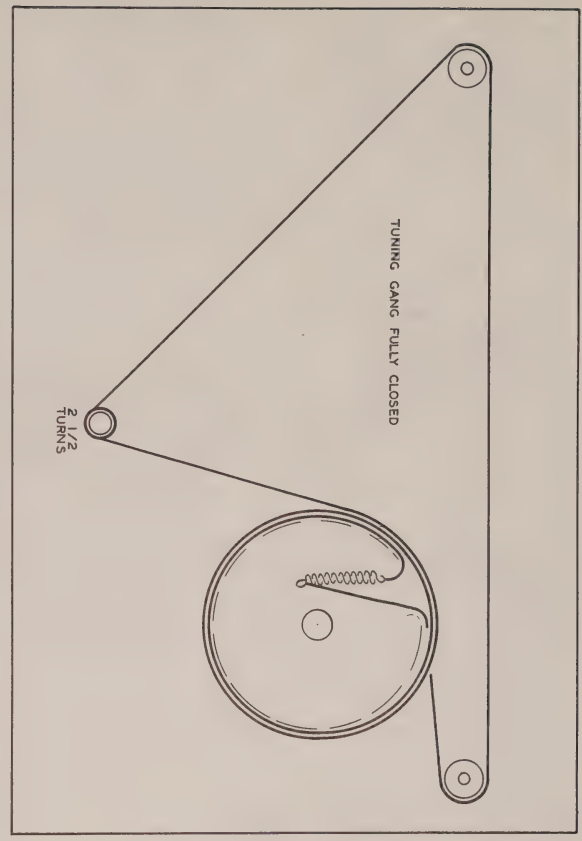
ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	CLAROSTAT PART No.	
55A	1.5 Meg.	½	70342	D18-139XX	T-95	Volume Control tapped @ .250K & 500KΩ.
B	Shaft		Not Req.	A	Not Req.	Attach to 55A per Instructions.
C	Switch		" "	41	SW-A	" " "

RESISTORS

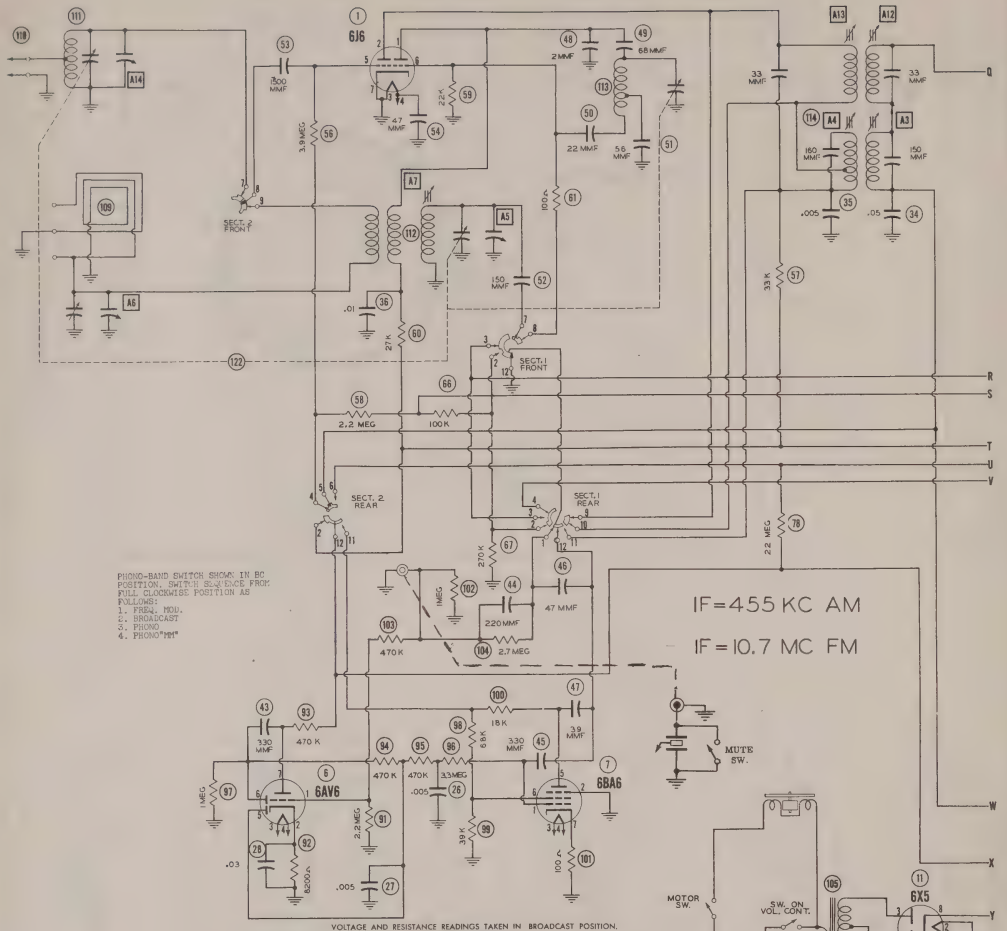
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	
56	3.9 Meg.	½		BTS-3.9 Meg.	Or.-White-Grn. Converter Grid.
57	33KΩ	½		BTS-33K	Or.-Or.-Or. " " Plate Decoupling.
58	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network.
59	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid.
60	27KΩ	1		BTA-27K	Red-Vi.-Or. " " Plate Decoupling.
61	100Ω	½			Br.-Blk.-Br. Parasitic Suppressor.
62	68Ω	½			Blue-Gray-Blk. IF Cathode.
63	27KΩ	½		BTS-27K	Red-Vi.-Or. " Screen.
64	68Ω	½		BTS-680	Blue-Gray-Br. Decoupling.
65	56KΩ	½		BTS-56K	Grn.-Blue-Or. Diode Filter.
66	100KΩ	½		BTS-100K	Br.-Blk.-Yl. " Load.
67	270KΩ	½		BTS-270K	Red-Vi.-Yl. " "
68	120Ω	½			Br.-Red-Br. FM Driver Cathode.
69	15KΩ	½		BTS-15K	Br.-Grn.-Or. " " Screen.
70	680Ω	½		BTS-680	Blue-Gray-Br. " " Decoupling.
71	100Ω	½			Br.-Blk.-Br. RF Filter.
72	15KΩ	½		BTS-15K	Br.-Grn.-Or. De-emphasis.
73	10KΩ	½		BTS-10K	Br.-Blk.-Or. Tone Compensation.
74	1200Ω	½		BTS-1200	Br.-Red-Red. Balancing Resistor.
75	3300Ω	½		BTS-3300	Or.-Or.-Red. " "
76	39KΩ	½		BTS-39K	Or.-White-Red. Ratio Detector Diode Load.
77	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AVC Net.
78	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Blue. Bias.
79	18KΩ	½		BTS-18K	Br.-Gray-Or. Tone Compensation.
80	27KΩ	½		BTS-27K	Red-Vi.-Or. " "
81	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue. AF Grid.
82	270KΩ	½		BTS-270K	Red-Vi.-Yl. AF Plate Load.
83	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue. Phase Inverter Grid.
84	82KΩ	½		BTS-82K	Gray-Red-Or. " " Plate Load.
85	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid.
86	8200Ω	½		BTS-8200	Gray-Red-Red. " "
87	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. " "
88	470Ω	2		BT-2-470	Yl.-Vi.-Br. " Cathode.
89	2200Ω	7	73637	AB-2250	Filter.
90	3.9Ω	1	70250	BW-1-3.9	Series Dial Light.
91	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. Noise Suppressor Amp. Grid.
92	8200Ω	½		BTS-8200	Gray-Red-Red. " " " Cathode.
93	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. " " " Plate Load.
94	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Reactance Amp. Bias Network.
95	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. " " " "
96	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. Reactance Amp. Bias Network.
97	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. " " Diode Load.
98	68KΩ	1		BTA-68K	Blue-Gray-Or. M.M. Reactance Screen Dropping.
99	39KΩ	½		BTS-39K	Or.-White-Or. " " " Bleeder.
100	18KΩ	1		BTA-18K	Br.-Gray-Or. " " Plate Load.
101	100Ω	½		BW-½-100	Br.-Blk.-Br. " " Cathode.
102	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Phono Shunt.
103	470K	½		BTS-470K	Yl.-Vi.-Yl. Tone Compensation.
104	2.7 Meg.	½		BTS-2.7 Meg.	Red-Vi.-Grn. " "

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	RCA PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
105	117VAC @ .57A	550VCT .065ADC	6.4VAC @ 4.4A		73601			P-3048



DATE 3/49 496-18 SET #68 FOLDER #18



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1A	6J6	100VDC	69VDC	0V	6.4VAC	-3VDC	6-9VDC	0V	
1B	6J6	62VDC	65VDC	0V	6.4VAC	-1.2VDC	1-7.2VDC	0V	
2	6AV6	-.4VDC	0V	0V	6.4VAC	215VDC	120VDC	.7VDC	
43	6AV6	0V	0V	6.4VAC	0V	200VDC	190VDC	1.5VDC	
44	6AV6	-.5V.C	-.4VDC	6.4VAC	0V	-.4VDC	0V	0V	
5	6AV6	-.5V.C	0V	0V	6.4VAC	-.5VDC	-.6VDC	140VDC	
**6	6AV6	0V	1.4V.C	0V	6.4VAC	0V	0V	175VDC	
**7	6AV6	0V	0V	0V	6.4VAC	210VDC	80VDC	.6VDC	
8	6AV6	-.3VDC	0V	0V	6.4VAC	0V	0V	87VDC	
9	6AV6T	0V	6.4VAC	2-5VDC	230VDC	0V	0V	0V	167DC
10	6AV6T	0V	6.4VAC	295/DC	230VDC	0V	6.2VAC	0V	1.6VDC
11	6AV6T	0V	6.4VAC	275VAC	0V	275VAC	0V	0V	300VDC

*TAKEN WITH VACUUM TUBE VOLTMETER.
**Taken with band switch in phono "rh"

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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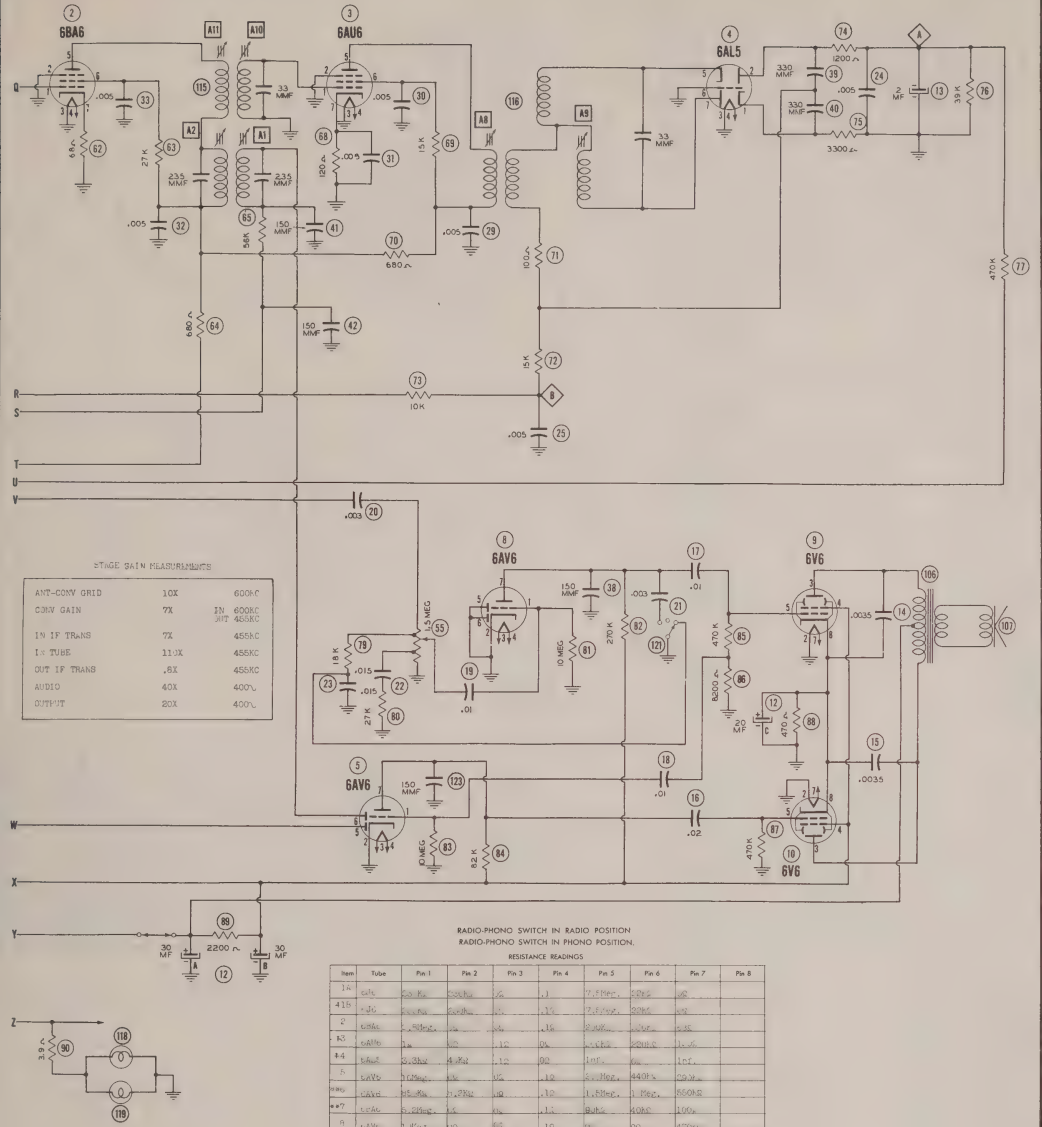

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1A	6BA6	20 MΩ	500KΩ	0Ω	0	7.5MEG.	50KΩ	0Ω	
1B	6AU6	2MEG.	500KΩ	0Ω	0Ω	7.5MEG.	20MΩ	0Ω	
2	6AL5	1.55MEG.	0Ω	0Ω	1.1Ω	0.2MEG.	0.2MEG.	0Ω	
3	6AV6	1MΩ	1MΩ	0Ω	0Ω	1.1KΩ	20MΩ	1.1KΩ	
4	6AU6	0.3MEG.	4.2KΩ	0Ω	0Ω	Inf.	0Ω	Inf.	
5	6AV6	1.0MEG.	10K	0Ω	0Ω	0.1MEG.	440Ω	0.1MEG.	
6	6AV6	65.5KΩ	11.2KΩ	0Ω	0Ω	1.5MEG.	1.5MEG.	550KΩ	
7	6AL5	0.25MEG.	0Ω	0Ω	0Ω	8MΩ	40MΩ	100Ω	
8	6AV6	1.0MEG.	0Ω	0Ω	0Ω	0Ω	0Ω	470Ω	
9	6GV6	0Ω	0Ω	0Ω	0Ω	200Ω	440Ω	0Ω	470Ω
10	6GV6	0Ω	0Ω	0Ω	0Ω	470Ω	0Ω	0Ω	470Ω
11	6AV6	0Ω	0Ω	0Ω	0Ω	1180	Inf.	0Ω	0.4MΩ

† VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer turn tuning cap fully closed and set pointer to second reference mark from left edge of dial back plate. This is the calibration mark referred to in steps below.
AM Alignment should be completed before FM Alignment is attempted.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD	High side to large AM stator of tuning cap. Low side to chassis.	455KC	AM (One position from fully clockwise.)	Tuning Cap. fully closed	Across voice coil.	A1,A2	Solder 47KΩ carbon resistor across AM primary of 2nd IF transformer (115). Adjust A1 for maximum output. Transfer resistor to secondary of same transformer and adjust A2 for maximum output. Remove 47KΩ resistor.
2	.01 MFD	"	455KC	"	"	"	A3,A4	Solder 47KΩ resistor across AM primary of 1st IF transformer (114). Adjust A3 for maximum output. Transfer resistor to secondary of same transformer and adjust A4 for maximum output. Remove 47KΩ resistor.
3	220MMFD	High side to external AM Ant. terminal "A". Low side to chassis.	1400KC	"	5 3/16" from calibration mark.	"	A5	Adjust for maximum output.
4	220MMFD	"	1400KC	"	Tune for maximum output.	"	A6	" "
5	220MMFD	"	600KC	"	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat steps 3,4, & 5 until no further improvement can be made.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Attenuate output of signal generator to give maximum meter reading of 3 volts.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6	.01 MFD	High side to pin 1 (Grid) of 6AU6 Low side to chassis	10.7 MC (400∿ amp. modulated).	FM (Fully clockwise).	Tuning cap. fully closed	D.C. Probe to point ⏚ Common to chassis	A8,A9	Connect output meter across voice coil. Alternately adjust A8 for maximum deflection on VTVM and A9 for minimum output on output meter. Two or more points may be found which lower the audio output. At the correct point the minimum audio output is approached rapidly and is much lower than at any other point.
7	300Ω carbon resistor.	High side to ungrounded FM Ant. terminal. Low side to chassis. (Disconnect Ant. lead from FM terminal).	10.7 MC (400∿ amp. modulated).	"	"	"	A10, A11	Solder a 680Ω carbon resistor across FM primary of 2nd IF transformer(115) Adjust A10 for maximum deflection. Transfer resistor to secondary of same transformer and adjust A11 for maximum deflection. Remove 680Ω resistor.
8	300Ω carbon resistor.	"	10.7 MC (400∿ amp. modulated).	"	"	"	A12, A13	Solder a 680Ω carbon resistor across FM primary of 1st IF transformer (114). Adjust A12 for maximum deflection. Transfer resistor to secondary of same transformer and adjust A13 for maximum deflection. Remove 680Ω resistor. Continue with FM-RF Alignment in step 9.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

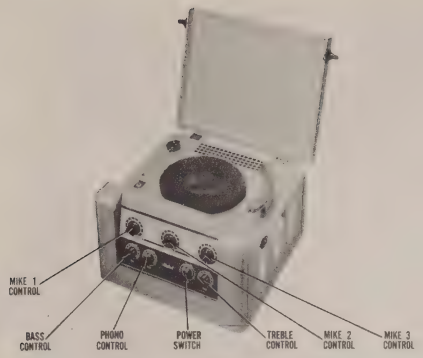
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
6	.01 MFD	High side to pin 1 (Grid) of 6BA6 1st IF tube (2). Low side to chassis	10.7 MC (Freq.Mod)	FM (fully clockwise).	Tuning cap. fully closed	Vertical input to point ⏚ Ground to chassis.	A8,A10 A11	Disconnect 2 MFD cap.(13) from point A. Adjust A8, A10, & A11 for maximum amplitude, symmetry and coincidence of pattern per Fig. 1.
7	.01 MFD	High side to pin 5 (Grid) of 6J6. Low side to chasis.	10.7 MC (Freq.Mod)	"	"	"	A12, A13	Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig.1. Reconnect cap. (13) to point A.
8	.01 MFD	"	10.7 MC (Freq.Mod)	"	"	Vertical input to point ⏚ Ground to chassis.	A9	Adjust for crossover of diagonal lines occurring at scope horizontal sweep line per Fig.2. Continue with FM-RF alignment in step 9.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9	300Ω carbon resistor	High side to ungrounded FM ant. terminal. Low side to chassis. (Remove FM Ant. lead from "FM" terminal).	106 MC (Unmod.)	FM (Fully clockwise)	5 1/8" from calibration mark.	D.C.Probe to point ⏚ Common to chassis	FM Osc coil (113).	Set A14 at maximum capacity. Compress or expand the Osc. Coil slightly for maximum deflection.
10	300Ω carbon resistor	"	106 MC (Unmod.)	"	Tune for maximum deflection.	"	A14	Rock tuning cap. and adjust for maximum deflection.
11	300Ω carbon resistor	"	90 MC	"	"	"	FM-Ant coil. (111)	Rock tuning cap. while expanding or compressing FM Ant. coil slightly for maximum deflection. Repeat steps 9,10, & 11 until no further improvement can be made.

FIG.1

FIG. 2



RAULAND MODEL 1841

TRADE NAME	Rauland Model 1841
MANUFACTURER	Rauland Corp., 4245 N. Knox Ave., Chicago 41, Ill.
TYPE SET	AC or Battery Operated Mobile 4 Channel Audio Amplifier.
TUBES (TEN)	Types 6SF5 Mic. 1 Amp., 6SF5 Mic. 2 Amp., 6SF5 Mic. 3 Amp., 6SC7 1st Mixer, 6SC7 2nd Mixer - Phono Amp., 6SC7 AF-Phase Inv.,(2)6L6 Power Output,(2)6X5GT Rectifier.
POWER SUPPLY RATING	110-120 Volts AC or 6 Volt Storage Battery. .85 Amp. @ 117 Volts AC or 14.5 Amp. @ 6.3 Volts DC.

VOLTAGE READING

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SF5	0V	1.6VDC	0V	0V	175VDC	0V	3.0VAC	3.0VAC
2	6SF5	0V	1.6VDC	0V	0V	175VDC	0V	3.0VAC	3.0VAC
3	6SF5	0V	1.6VDC	0V	0V	175VDC	0V	3.0VAC	3.0VAC
4	6SC7	0V	90VDC	0V	0V	90VDC	.8VDC	3.0VAC	3.0VAC
5	6SC7	0V	90VDC	0V	0V	90VDC	.8VDC	3.0VAC	3.0VAC
6	6SC7	0V	230VDC	0V	0V	150VDC	1.3VDC	3.0VAC	30VAC
7	6L6	0V	3.0VAC	400VDC	330VDC	0V	0V	3.0VAC	24.5VDC
8	6L6	0V	3.0VAC	400VDC	330VDC	0V	0V	3.0VAC	24.5VDC
9	6X5GT	0V	3.0VAC	360VAC	0V	360VAC	0V	3.0VAC	405VDC
10	6X5GT	0V	3.0VAC	360VAC	0V	360VAC	0V	3.0VAC	405VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SF5	0Ω	3.3KΩ	2.2 Meg.	0Ω	320KΩ	INF	.05Ω	.05Ω
2	6SF5	.0Ω	3.3KΩ	2.2 Meg.	0Ω	320KΩ	INF	.05Ω	.05Ω
3	6SF5	0Ω	3.3KΩ	2.2 Meg.	0Ω	320KΩ	2 Meg.	.05Ω	.05Ω
4	6SC7	0Ω	190KΩ	0Ω	0Ω	190KΩ	360Ω	.05Ω	.05Ω
5	6SC7	0Ω	190KΩ	0Ω	0Ω	190KΩ	360Ω	.05Ω	.05Ω
6	6SC7	0Ω	320KΩ	40KΩ	5.6KΩ	320KΩ	1KΩ	.05Ω	.05Ω
7	6L6	0Ω	.05Ω	80KΩ	85KΩ	220KΩ	0Ω	.05Ω	200Ω
8	6L6	0Ω	.05Ω	80KΩ	85KΩ	220KΩ	INF	.05Ω	200Ω
9	6X5GT	INF	.05Ω	95Ω	INF	95Ω	INF	.05Ω	80KΩ
10	6X5GT	INF	.05Ω	100Ω	INF	100Ω	INF	.05Ω	80KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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DATE 3/49 496-19 SET #58 FOLDER #19

RAULAND
MODEL 1841

PARTS LIST AND DESCRIPTIONS

RAULAND MODEL 1841

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RAULAND PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mic. #1 Amp.	6SF5	6SF5	6AB	
2	Mic. #2 Amp.	6SF5	6SF5	6AB	
3	Mic. #3 Amp.	6SF5	6SF5	6AB	
4	1st Mixer	6SC7	6SC7	8S	
5	2nd Mixer-Phono Amp.	6SC7	6SC7	8S	
6	AF-Phase Inv.	6SC7	6SC7	8S	
7	Power Output	6L6	6L6	7AC	
8	Power Output	6L6	6L6	7AC	
9	Rectifier	6X5GT	6X5GT	6S	
10	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

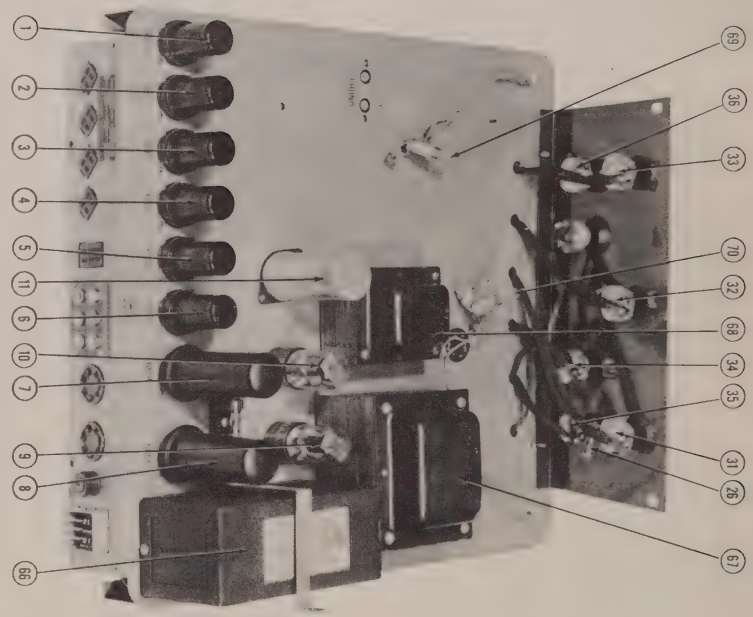
ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RAULAND PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
11A	40	450	CE-706A	AF2222J*	UP111145*	DY-4X10-450*	TL-410*	Filter●
11B	10	450		PRS 450/30	BR3045	M-30-450	UT-30	Filter■
11C	10	450						Filter▲
11D	10	450						Decoupling.
12	8	450	CE-805B	PRS 450/8	BR845	M-8-450	UT-8	"
13A	40	25		PRS 150/40-40	BRD4415	DSB 2X40-150	TA440	Cathode Bypass.
13B	40	25						" "
14	40	25		PRS 25/50	BR502	M-50-25	TA-50	" "
15	40	25		PRS 25/50	BR502	M-50-25	TA-50	" "
16A	40	25		PRS 150/40-40	BRD4415	DSB-2X40-150	TA440	" "
16B	40	25						" "
17	.5	400		430T-.5	DYR6050	XDMR6-.5	BP-50	Line Filter.
18	3	150		609-3	T6030	XLXPL-6-4	UC-46	Line Filter.
19	.5	200		484-.5	GT2P5	ST-2-5	TC-5	Hash Filter.
20	.5	200		484-.5	GT2P5	ST-2-5	TC-5	Hash Filter.
21	.5	200		484-.5	GT2P5	ST-2-5	TC-5	Hash Filter
22	.002	1600		1684-002	GT16D2	STM-16-002	TR-22	Output Plate Bypass.
23	.05	600		684-05	GT6S5	ST-6-05	TC-15	Audio Coupling.
24	.05	600		684-05	GT6S5	ST-6-05	TC-15	Audio Coupling.
25	.02	600		684-02	GT6S2	ST-6-02	TC-12	Tone Comp.
26	.001	600		684-001	GT6D1	ST-6-001	TC-21	" "
27	.05	600		684-05	GT6S5	ST-6-05	TC-15	Audio Coupling.
28	.02	600		684-02	GT6S2	ST-6-02	TC-12	" "
29	.02	600		684-02	GT6S2	ST-6-02	TC-12	" "
30	.02	600		684-02	GT6S2	ST-6-02	TC-12	" "

* Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RAULAND PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
31A	500KΩ	½	RP-504B	D13-133	AM-60-Z	Mike 1 Control.
B	Shaft		Not Req.	E	KSS-3	Attach to 31A per Instructions.
32A	500KΩ	½	RP-504B	D13-133	AM-60-Z	Mike 2 Control.
B	Shaft		Not Req.	E	KSS-3	Attach to 32A per Instructions.
33A	500KΩ	½	RP-504B	D13-133	AM-60-Z	Mike 3 Control.
B	Shaft		Not Req.	E	KSS-3	Attach to 33A per Instructions.
34A	1 Meg.	½	RP-105A	DVC-539X		Phono Control Tapped @ 500KΩ.
B	Shaft		Not Req.	E		Attach to 34A per Instructions.
35A	2 Meg.	½	RP-205B		AM-83-S	Bass Control.
B	Shaft		Not Req.		KSS-3	Attach to 35A per Instructions.
36A	500KΩ	½	RP-504B	D13-133	AM-60-Z	Treble Control.
B	Shaft		Not Req.	E	KSS-3	Attach to 36A per Instructions.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	RAULAND PART No.	IRC PART No.		
37	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn.	1st Mic. Amp. Grid.
38	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn.	2nd Mic. Amp. Grid.
39	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn.	3rd Mic. Amp. Grid.
40	3300Ω	½		BTS-3300	Or.-Or.-Red	1st Mic. Amp. Cathode.
41	3300Ω	½		BTS-3300	Or.-Or.-Red	2nd Mic. Amp. Cathode.
42	3300Ω	½		BTS-3300	Or.-Or.-Red	3rd Mic. Amp. Cathode.
43	250KΩ	½		BTS-220K	Red-Grn.-Yl.	1st Mic. Amp. Plate Load.
44	250KΩ	½		BTS-220K	Red-Grn.-Yl.	2nd Mic. Amp. Plate Load.
45	250KΩ	½		BTS-220K	Red-Grn.-Yl.	3rd Mic. Amp. Plate Load.
46	470KΩ	½		BTS-470K	Yl.-Vi.-Yl.	Bias.
47	470KΩ	½		BTS-470K	Yl.-Vi.-Yl.	Bias.
48	470KΩ	½		BTS-470K	Yl.-Vi.-Yl.	Bias.
49	340Ω	½		BW-½-330	Or.-Yl.-Br.	Mixer Cathode.
50	10Ω	½		BW-½-10	Br.-Blk.-Blk.	Mixer Cathode.
51	100KΩ	½		BTS-100K	Br.-Blk.-Yl.	Mixer Plate Load.
52	2200Ω	½		BTS-2200	Red-Red-Red	Decoupling.
53	2200Ω	½		BTS-2200	Red-Red-Red	Decoupling.
54	40KΩ	½		BTS-47K	Yl.-Blk.-Or.	AF Grid.
55	1000Ω	1		BTA-1000	Br.-Blk.-Red	AF Cathode.
56	250KΩ	½		BTS-220K	Red-Grn.-Yl.	AF Plate Load.
57	5600Ω	½		BTS-5600	Grn.-Blue-Red	Phase Inv. Grid.
58	250KΩ	½		BTS-220K	Red-Grn.-Yl.	Phase Inv. Plate Load.
59	220KΩ	½		BTS-220K	Red-Red-Yl.	Output Grid.
60	220KΩ	½		BTS-220K	Red-Red-Yl.	Output Grid.
61	200Ω	10		AB-200		Output Cathode.
62	2000Ω	1		BTA-2200	Red-Blk.-Red	Filter.
63	5000Ω	10		AB-5000		Filter.
64	68Ω	1		BW-1-68	Blue-Gray-Blk	Hash Supr.
65	4700Ω	½		BTS-4700	Yl.-Vi.-Red	Feedback.

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA		INSTALLATION NOTES
				RAULAND PART No.	RADIART PART No.	
66	Int.	6.3 VDC	60~	JV-0002		

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	RAULAND PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
67	117VAC @ .85A or 6.3VDC @ 9.4A	720VCT .12ADC	6.0VCT @ 4.65A		LP-0074			

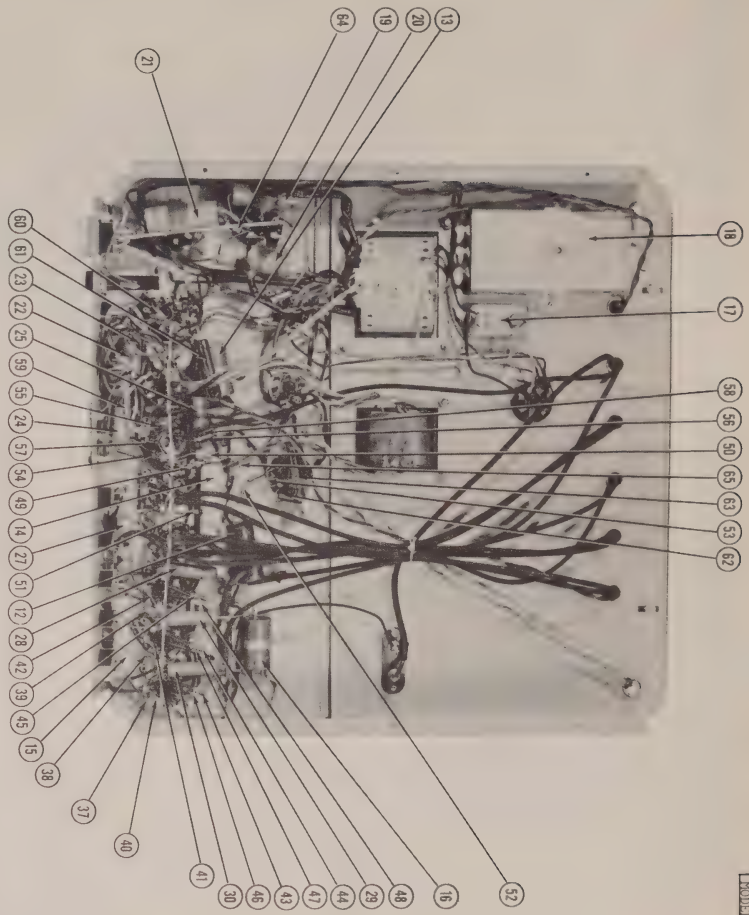
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		RAULAND PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
68	5300Ω CT	500Ω 250Ω 16Ω 8Ω 4Ω	110Ω CT	9Ω 6Ω .4Ω .2Ω .1Ω	LO-0108				

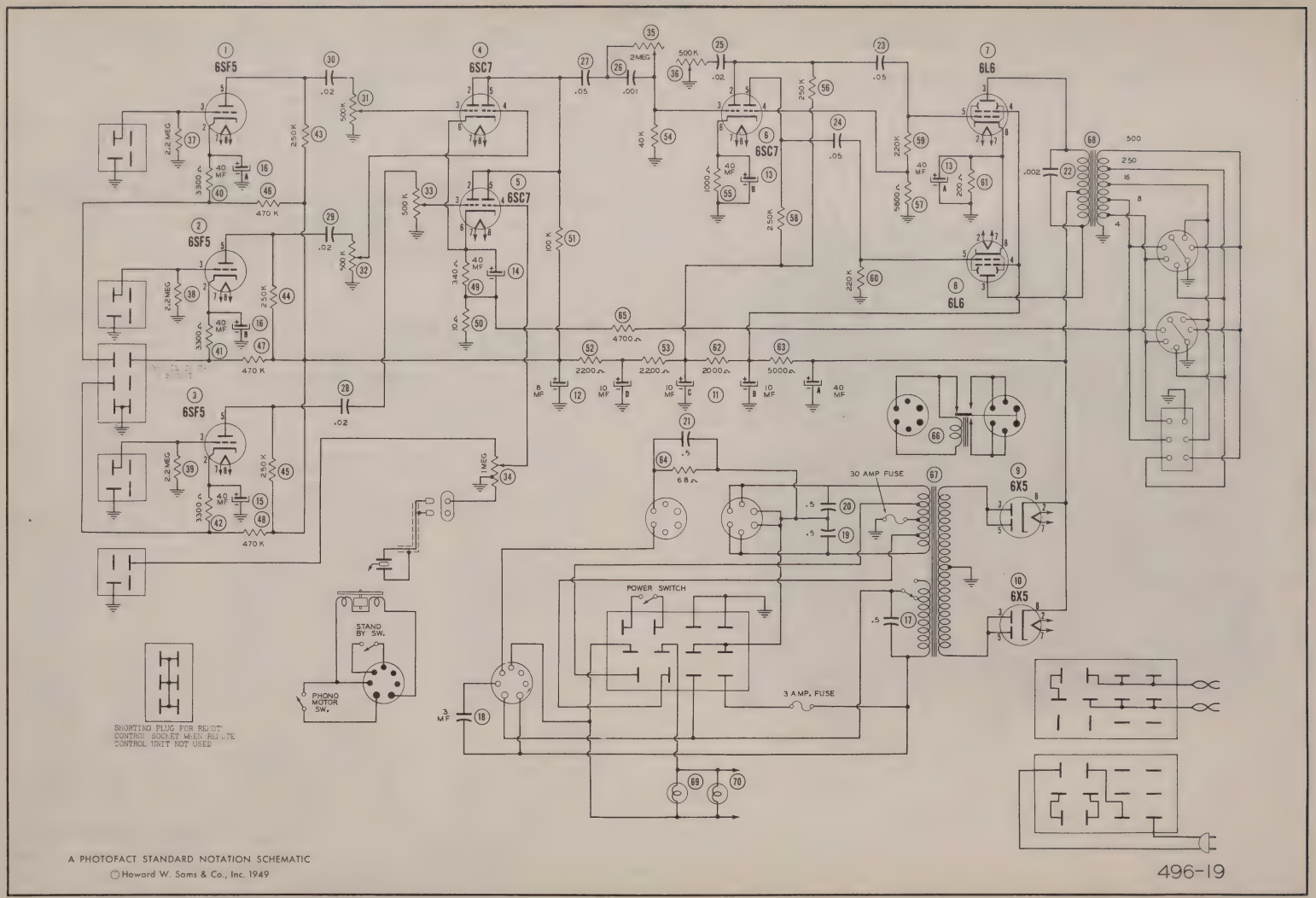
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					RAULAND PART No.		
69	Bayonet	6-8V	0.25A	Blue			Type #44
70	"	6-8V	0.25A	Blue			" "

CHASSIS—BOTTOM VIEW



RAULAND MODEL 1841



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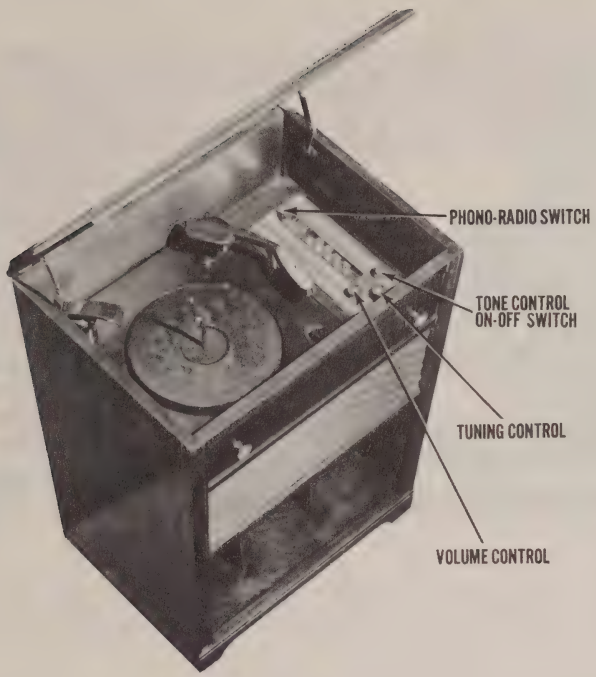

SILVERTONE
MODELS 7080, A (Ch. 101.809-2),
8083, A, 8084, A (Ch. 101.809-1A, B),
8101, A, B, C (Ch. 101.809-3C)

SILVERTONE MODEL 8101C

TRADE NAME	Silvertone, Models 7080, 7080A (Ch. 101.809-2), 8083, 8083A (Ch. 101.809-1A), 8084,8084A (Ch. 101.809-1B), 8101, 8101A, 8101B, 8101C (Ch. 101.809-3C)
SUPPLIER	Sears Roebuck & Co., 925 S. Homan St., Chicago, Ill.
TYPE SET	AC Operated Combination Phono-Radio, Superheterodyne Receiver with Loop Antenna.
TUBES (SIX)	Types 7B7 RF Amp., 14Q7 Converter, 7B7 IF Amp., 7C6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	.25 Amp. @ 117 Volts AC
TUNING RANGE— BROADCAST	520-1650

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer, turn tuning cap fully closed and set pointer 1 3/32" from left edge of dial back plate.
Use isolation transformer if available. If not connect a .1 MFD cap. in series with low side of signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to pin 4(Grid) of 14Q7. Low side to B-.	455KC	Tuning Cap. fully closed.	Across Voice Coil	A1,A2 A3,A4	Adjust for maximum output. If isolation transformer is not used reduce dummy antenna to .001 MFD to reduce hum modulation.
2	200MMFD	High side to external ant. terminal. Low side to B-.	1650KC	Tuning Cap fully open.	"	A5	Adjust for maximum output.
3	200MMFD	"	1400KC	Tune for maximum output.	"	A6,A7	Adjust for maximum output.

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DATE 3/49 496-20 SET #58 FOLDER 20

PARTS LIST AND DESCRIPTIONS

SILVERTONE
MODEL 9101C

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7B7	7B7	8V	
2	Converter	14Q7	14Q7	8AL	
3	IF Amp.	7B7	7B7	8V	
4	Det.-AVC-AF	7C6	7C6	8W	
5	Power Output	50A5	50A5	6AA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	R60416	AF88D4A	UP4415C	DY-305	EL-352	Filter ■
B	40	150						" ▲
C	20	25						Cathode Bypass.
8	.05	600		684-05	GT6S5	ST-6-05	TC-15	Line Filter.
9	.1	400		484-.1	GT4P1	ST-4-1	TZP2	Line Isolation.
10	.02	600		684-02	GT6S2	ST-6-02	TC-12	Output Plate Bypass.
11	.005	600		684-005	GT6D5	ST-6-005	TC-25	Audio Coupling.
12	.005	600		684-005	GT6D5	ST-6-005	TC-25	Audio Coupling.
13	.1	200		484-.1	GT2P1	ST-2-1	TC-1	AF Plate Bypass.
14	.001	600		684- 001	GT6D1	ST-6-001	TC-21	Tone Comp.
15	.01	400		484- 01	GT4S1	ST-4-01	TC-11	" "
16	.05	200		484-05	GT2S5	ST-4-05	TC-15	Phono Isolation.
17	.005	600		684- 005	GT6D5	ST-6-005	TC-25	Audio Coupling.
18	.05	200		484- 05	GT2S5	ST-4-05	TC-15	RF Bypass Pwr. Supply
19	.05	200		484- 05	GT2S5	ST-4-05	TC-15	AVC Filter.
20	.01	600		684- 01	GT6S1	ST-6-01	TC-11	Osc. Tuning Cap. Isolatn.
21	.001	600		684-001	GT6D1	ST-6-001	TC-21	Ext. Ant. Coupling.
22	100	500	R14140	1468-0001	5W5T1	MO.5-31	IFM-31	AF Plate Bypass.
23	100	500	R14140	1468-0001	5W5T1	MO.5-31	IFM-31	Osc. Grid Cap.
24	100	500	R14140	1468-0001	5W5T1	MO.5-31	IFM-31	RF Coupling.

CONTROLS

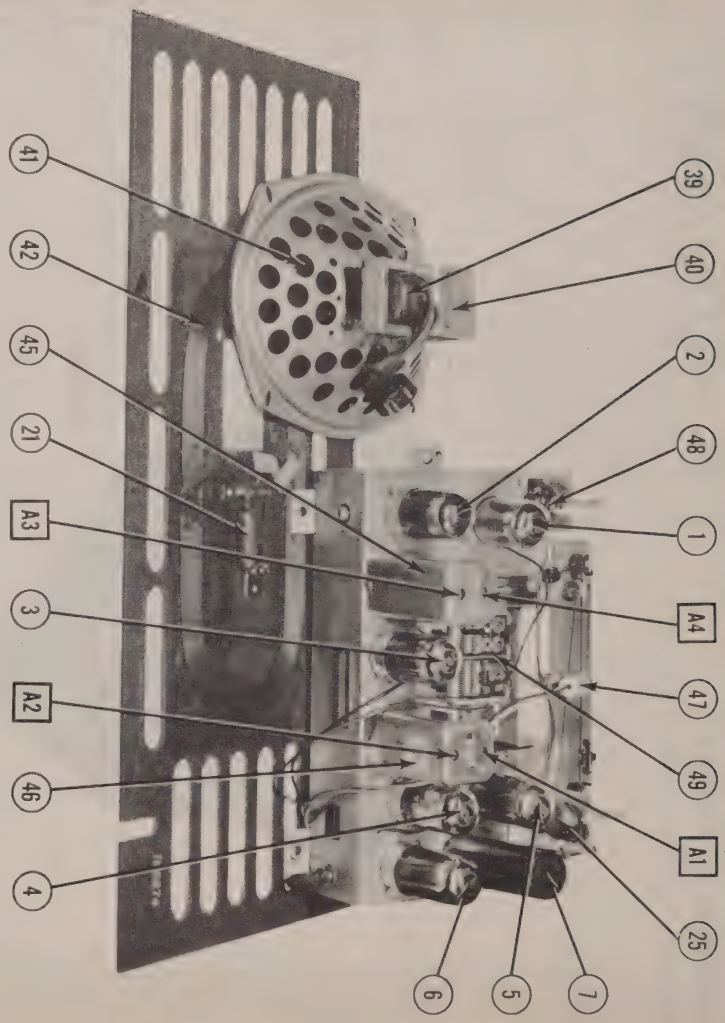
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
25A	2 Meg.	½	R62528*	D13-139X	T-115	Volume Control tapped @ 500KΩ.
B	Shaft		Not Req.	A	Not Req.	Attach to 25A per Instructions.
26A	2 Meg.	½	R62529†	D13-139	M-66-Z	Tone Control.
B	Shaft		Not Req.	A	Not Req.	Attach to 26A per Instructions.
C	Switch		Not Req.	41	SW-A	" " " " "

* Volume control part # R60505 used on Ch. 101.809-2.
† Tone control part # R61864 used on Ch. 101.809-2.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES	
27	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn.	RF Grid.
28	470Ω	½		BTS-470	Yl.-Vi.-Br.	Parasitic Supp.
29	22KΩ	½		BTS-22K	Red-Red-Or.	Osc. Grid.
30	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn.	AVC Net.
31	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn.	AF Grid.
32	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn.	AF Plate Load.
33	470KΩ	½		BTS-470K	Yl.-Vi.-Yl.	AF Plate Decoupling.
34	470KΩ	½		BTS-470K	Yl.-Vi.-Yl.	Output Grid.
35	150Ω	1		BW-½-150	Br.-Grn.-Or.	Output Cathode.
36	1200Ω	1		BTA-1200	Br.-Red-Red	Filter.
37	47KΩ	½		BTS-47K	Yl.-Vi.-Or.	Tone Comp.
38	25Ω	1	R40232		Red-Grn.-Blk.	Surge Limiter.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
39	22000Ω	3.3	340Ω Tap @ 12Ω	.9Ω	R62660	A-3330		A-3031	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V.C. IMP.				
40A	PM	3.3Ω	R-62658		69A3	Used with chassis 101.809-1A,-1B, -3C
40B			R-60671			Used with chassis 101.809-2
	CONE DIA.	V.C. DIA.				
41A	6 1/8"X 9 1/8"	3/4"	R-62659			
41B			R-60780			

R F COILS

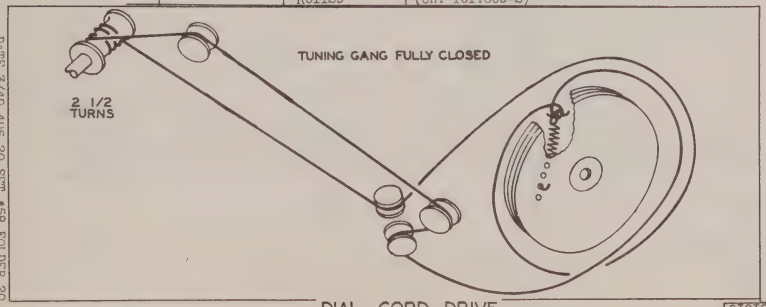
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	
42A	Loop Ant.	0Ω	2.5Ω	R65274		Used with Ch. 101.809-3C.
42B	" "			R62663		" " 101.809-1A
42C	" "			R62665		" " 101.809-1-B
42D	" "			R60682		" " 101.809-2
43	RF Coil	2Ω	15Ω	R60465		
44	Osc. Coil		4.1Ω	R60448		
45	Input IF	10.5Ω	11Ω	R60417	16-6658	
46	Output IF	14Ω		R60418		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SILVERTONE PART No.		
47	Bayonet	6-8V	0.15A	Brown			Type # 47

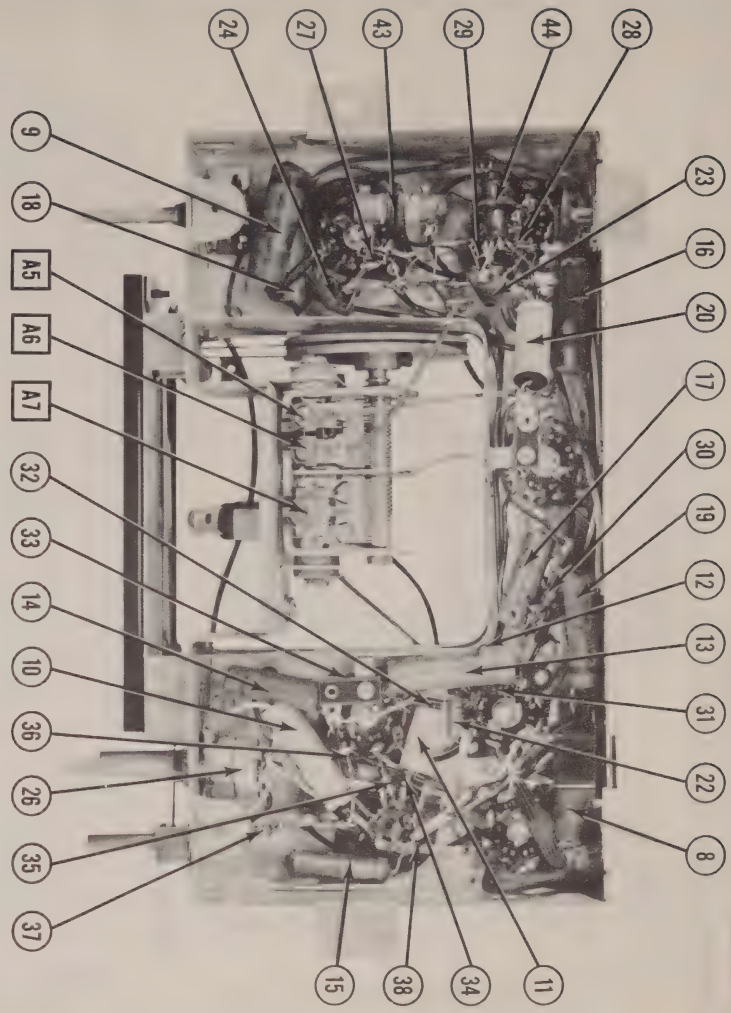
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
48A	Switch	R62657	Radio-Phono (Ch. 101.809-1A,1B)
B	"	R60517	Radio-Phono (Ch. 101.809-2)
49	3 Gang Var.Cap.	R60413	(17-507 MMF, 13-250 MMF,13-88 MMF)
	Dial Pointer	R62650	(Ch. 101.809-1A, 1B, 3C)
	" "	R61129	(Ch. 101.809-2)

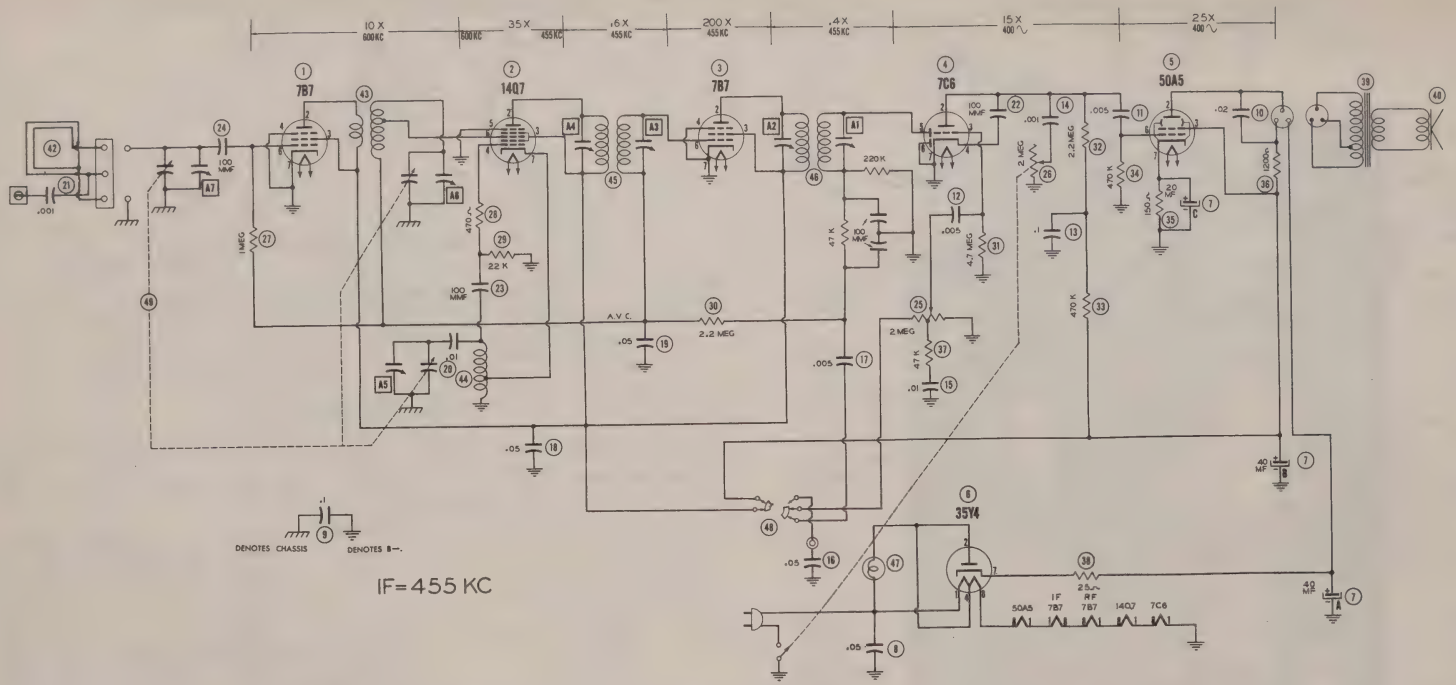


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



DATE 3/49 496-20 SCT #58 FOLDER 20
SILVERTONE MODEL 810IC
SILVERTONE MODEL 810IC



VOLTAGE READINGS

RADIO-PHONO SWITCH IN RADIO POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	20VAC	75VDC	75VDC	0V	0V	-.3VDC	0V	28VAC
2	1407	6.6VAC	75VDC	75VDC	1-7VDC	0V	-.3VDC	0V	20VAC
3	7B7	34VAC	75VDC	75VDC	0V	0V	-.3VDC	0V	28VAC
4	7C6	0V	30VDC	-.6VDC	0V	+.5VDC	0V	0V	6.6VAC
5	50A5	34VAC	100VDC	75VDC	60VDC	0V	0V	8.7VDC	85VAC
6	35Y4	117VAC	112VAC	0V	112VAC	0V	0V	118VDC	85VAC

TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	20Ω	120KΩ	120KΩ	0Ω	0Ω	3.5 Meg.	0Ω	28Ω
2	1407	8Ω	120KΩ	120KΩ	22KΩ	0Ω	2.5 Meg.	.2Ω	20Ω
3	7B7	36Ω	120KΩ	120KΩ	0Ω	0Ω	2.5 Meg.	0Ω	28Ω
4	7C6	0Ω	2.8 Meg.	4.7 Meg.	0Ω	220KΩ	0Ω	0Ω	8Ω
5	50A5	36Ω	120KΩ	120KΩ	590KΩ	2 Meg.	470KΩ	150Ω	85Ω
6	35Y4	115Ω	109Ω	INF	102Ω	0Ω	INF	120KΩ	85Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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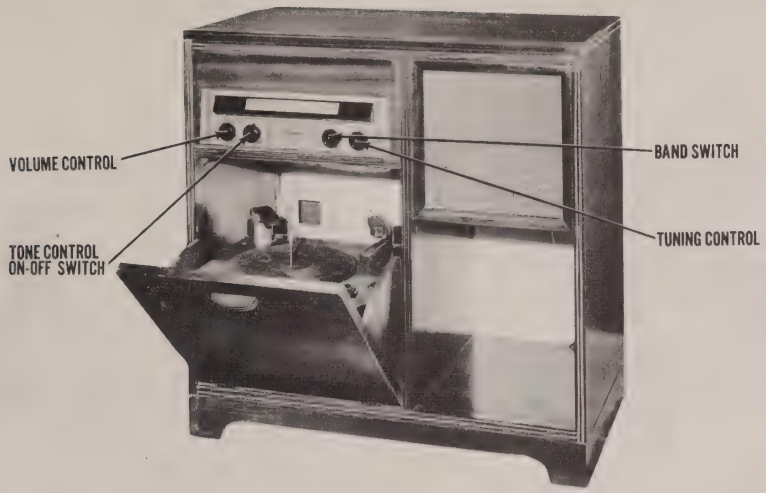
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



SPARTON MODEL 1051

TRADE NAME	Sparton, Models 1051, 1052 (Ch. 6B9)
MANUFACTURER	Sparks-Withington Co., Jackson, Michigan.
TYPE SET	AC Operated Combination Phono-Radio, 2 Band Superheterodyne Receiver with Loop Ant.
TUBES(SIX)	Types 12BA6 RF Amp., 12BE6 Converter, 12BA6 IF Amp., 12SQ7GT Det.-AVC-AF, (2) 35L6GT Power Output.
POWER SUPPLY	110-120 Volts AC
RATING	.35 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1610KC SHORT WAVE 5.0-19.5 MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low frequency end of dial.

Use isolation transformer if available. If not connect a .1 MFD. cap. in series with low side of signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

Dummy antenna consists of a 200MMFD cap. in series with a 20 MH choke, the choke being shunted by a 400MMFD cap. in series with a 100Ω carbon resistor.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.02MFD	High side to pin 7(Grid) of 12BE6. Low side to B-.	456KC	BC Center Position	Tuning Cap. fully open.	Across Voice Coil	A1,A2 A3,A4	Adjust for maximum output. If Isolation transformer is not used reduce dummy antenna to .001MFD to reduce hum modulation.
2	.02MFD	High side to external Ant. lead. Low side to B-.	456KC	"	Tuning Cap. fully closed	"	A5	Adjust for minimum output
3	Dummy Ant.	"	1500KC	"	1500KC	"	A6	Adjust for maximum output
4	Dummy Ant.	"	1500KC	"	Tune for maximum output.	"	A7	" " " "
5	Dummy Ant.	"	600KC	"	"	"	A8	Rock tuning cap. and adjust A8 for maximum output. Repeat steps 3,4,&5 until no further improvement can be made.
6	Dummy Ant.	High Side to external Ant. lead Low side to B-.	18MC	SW (Counter clockwise)	18MC	Across Voice Coil	A9	Adjust for maximum output
7	"	"	18MC	"	Tune for maximum output.	"	A10	Rock tuning cap. and adjust A10 for maximum output.

SPARTON
MODELS 1051, 1052

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PARTS LIST AND DESCRIPTIONS

SPARTON MODEL 1051

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SPARTON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12BA6	12BA6	7BK	
2	Converter	12BE6	12BE6	7CH	
3	IF Amp.	12BA6	12BA6	7BK	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Power Output	35L6GT	35L6GT	7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SPARTON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	PA4300-9	AF888D	UP44415	DY-3X40-150	EL-340	Filter ◘
7B	40	150						" ▲
7C	40	150						"
8	.05	400	PC40GL-503	484-05	GT4S5	ST-4-05	72P1	Line Isolation.
9	.05	400	PC40HL-503	484-05	GT4S5	ST-4-05	TC-15	Rectifier Bypass.
10	.006	1000	PC40GN-602	1084-006	GT16D6	STM-16-006	TR-26	Output Plate Bypass.
11	.01	200	PC40HK-103	484-01	GT2S1	ST-4-01	TC-11	Audio Coupling.
12	.01	200	PC40HK-103	484-01	GT2S1	ST-4-01	TC-11	" "
13	.01	200	PC40HK-103	484-01	GT2S1	ST-4-01	TC-11	" "
14	.005	400	PC40GL-502	484-005	GT6D5	ST-6-005	TC-25	Tone Comp.
15	.1	200	PC40HK-104	484-.1	GT2P1	ST-2-1	TC-1	Decoupling.
16	.05	400	PC40GL-503	484-05	GT4S5	ST-4-05	TC-15	Phono Isolation.
17	.05	200	PC40HK-503	484-05	GT2S5	ST-4-05	TC-15	AVC Filter.
18	.05	200	PC40HK-503	484-05	GT2S5	ST-4-05	TC-15	RF Cath. Bypass.
19	.05	400	PC40HL-503	484-05	GT4S5	ST-4-05	TC-15	" " "
20A	100	300		1468-0001	5W5T1	MO.5-31	IFM-31	Diode Filter. Cer.
20B	100	300	*	1468-0001	5W5T1	MO.5-31	IFM-31	" " Cer.
21	100	500	MC60G-101	1468-0001	5W5T1	MO.5-31	IFM-31	RF Coupling.
22	51	500	MC60F-510	1468-00005	5W5C5	MO.5-45	IFM-45	Osc. Grid Cap.
23	150	500	MC60G-151	1468-00015	5W5T15	MO.5-315	IFM-315	RF Coupling.
24	82	300	MC60F-820	1468-000075	5W5Q7	MO5.5-47	IFM-47S	SW Ant. Coupling. Cer

* Item 20A, 20B and 36 are combined into one unit obtainable under Mfgrs. part #PA4329-3.

CONTROLS

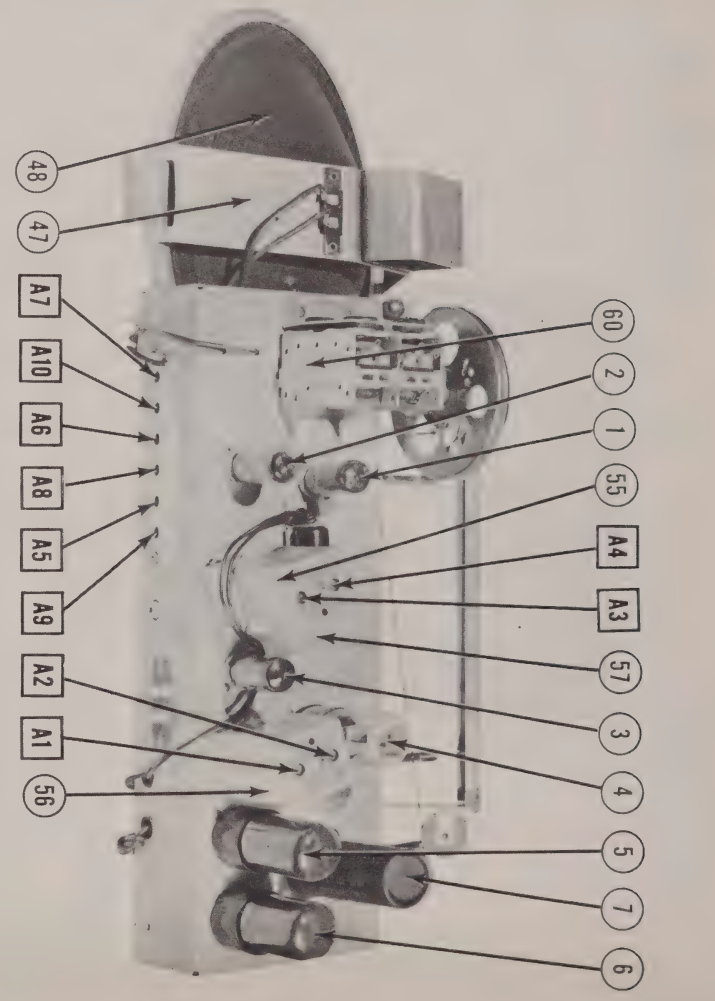
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	500KΩ	½	PA4402-4	D13-133	AM-60-Z	Volume Control.
B	Shaft		Not Req.	E	KSS-3	Attach to 25A per Instructions.
26A	50KΩ	½	PA4400-9	D13-133	AM-60-Z	Tone Control.
B	Shaft		Not Req.	E	KSS-3	Attach to 26A per Instructions.
C	Switch		" "	41	SW-A	" " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	IDENTIFICATION CODES	
27	2700Ω	½	BR12S-272	BTS-2700	Red-Vi.-Red	Ant. Loading.
28	470KΩ	½	BR12S-474	BTS-470K	Yl.-Vi.-Yl.	RF Grid.
29	470Ω	½	BR12S-471	BTS-470	Yl.-Vi.-Br.	RF Cathode.
30	5100Ω	½	BR12S-512	BTS-4700	Grn.-Br.-Red	RF Plate Load.
31	22KΩ	½	BR12S-223	BTS-22K	Red-Red-Or.	Osc. Grid
32	10KΩ	½	BR12S-103	BTS-10K	Br.-Blk.-Or.	Conv. Grid.
33	68KΩ	½	BR12S-683	BTS-68K	Blue-Gray-Or.	Conv. Grid.
34	82Ω	½	BR12S-820	BW-½-82	Gray-Red-Blk.	IF Cathode.
35	2.2 Meg.	½	BR12S-225	BTS-2.2 Meg.	Red-Red-Grn.	AVC Net.
36	56KΩ	½	*	BTS-56K		Diode Filter.
37	10 Meg.	½	BR12S-106	BTS-10 Meg.	BR.-Blk.-Blue	AF Grid.
38	270KΩ	½	BR12S-274	BTS-270K	Red-Vi.-Yl.	AF Plate Load.
39	1 Meg.	½	BR12S-105	BTS-1 Meg.	Br.-Blk.-Grn,	Output Grid.
40	1 Meg.	½	BR12S-105	BTS-1 Meg.	Br.-Blk.-Grn.	Output Grid.
41	100Ω	1	CR12S-101	BW-1-100	Br.-Blk.-Br.	Output Cathode.
42	100Ω	1	CR12S-101	BW-1-100	Br.-Blk.-Br.	Output Cathode.
43	1200Ω	1	CR12S-122	BTA-1200	BR.-Red-Red	Filter.
44	120Ω	1	CR12S-121	BW-1-120	BR.-Red-Br.	Filter
45	27Ω	2	BR12S-270		Red-Vi.-Blk.	Surge Limiter.

* Items 36, 20A & B are combined into one unit obtainable under Mfgrs. Part # PA4329-3

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SPARTON PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
46	670Ω CT	3.5Ω	160Ω CT	.1Ω	AB-44060-1	A-3823 #	T22S87 #	A-2901 #	# Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SPARTON PART No.	JENSEN PART No.	QUAM PART No.	
47	FIELD PM	V.C. IMP. 3.5Ω	PC63000-20	ST-120#† MOD.P10-S	10A31 #	# Drill new mounting holes. † Replace output transformer to match 6-8Ω VC.
48	CONE DIA. 9 1/4"	V.C. DIA. 1"				

R F COILS

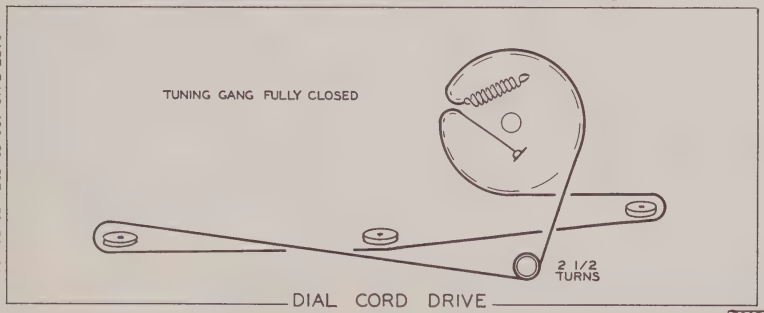
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	SPARTON PART No.	MEISSNER PART No.
49	AM Loop Ant		0Ω	PB41927-1	
50	Loop Loading coil.		1.5Ω	AA6686-4	
51	SW Ant.Coil	.7Ω	0Ω	AA6758-8	
52	IF Wave Trap coil.		23Ω	AA6787-1	
53	AM Osc.Coil	.3Ω	3.5Ω	AA6797-3	
54	SW Osc.Coil	0Ω	.2Ω	AA6753-7	
55	Input IF	8.5Ω	10Ω	AB43502-24	16-5712
56	Output IF	5Ω	5Ω	AB43502-25	16-5714

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SPARTON PART No.		
57	Screw	120V			PA4102-1		120 V. 7W.

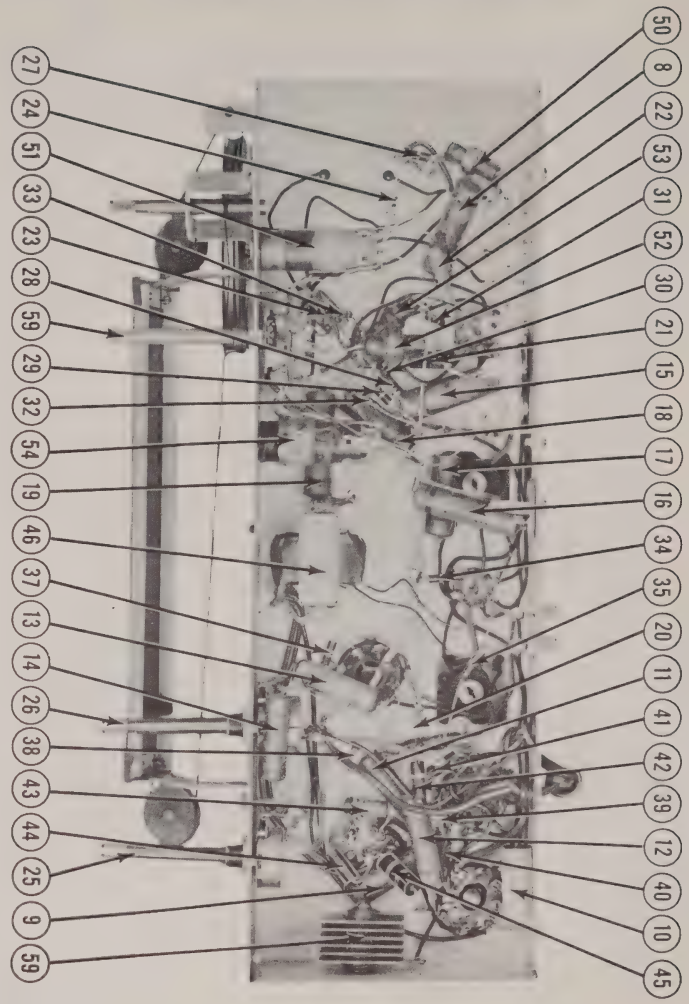
MISCELLANEOUS

ITEM No.	PART NAME	SPARTON PART No.	NOTES
58	Switch	PA4609	Band-Phono.
59	Rectifier	PA4.04	Selenium
60	2 Gang Var.Cap.	PB40412	(16-507 MMF) Each Section.
	Trimmer Strip	PA4367	A5, A6, A7, A8, A9, A10
	Dial	PB30010	
	Dial Pointer	PA5409	
	Knob	PA5625-1	

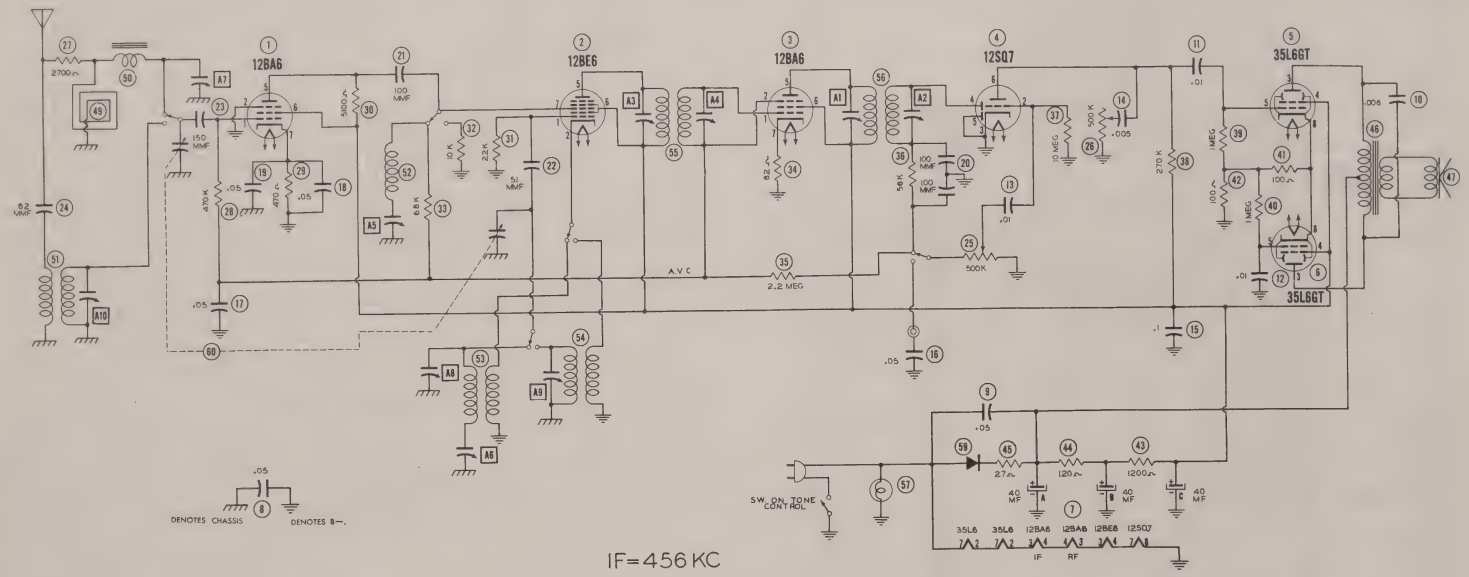


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



DATE 3/49 496-21 SLT #58 FOLDER #21
SPARTON MODEL 1051
SPARTON MODEL 1051



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BA6	-.1VDC	0V	26VAC	39VAC	75VDC	93VDC	2.5VDC	
2	12BE6	§1.1VDC	0V	26VAC	12VAC	93VDC	93VDC	-.2VDC	
3	12BA6	-.2VDC	-.2VDC	49VAC	39VAC	93VDC	93VDC	.8VDC	
4	12SQ7GT	0V	-.7VDC	0V	-.5VDC	0.	85VDC	12 VAC	0V
5	35L6GT	0V		49VAC	130VDC	93VDC	.8VDC	5.5VDC	82VAC	11VDC
6	35L6GT	0V		82VAC	130VDC	93VDC	.8VDC	117VAC	117VAC	11VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BA6	3.5 Meg.	0Ω	23Ω	34Ω	*6.4KΩ	*1300Ω	470Ω	
2	12BE6	22KΩ	.3Ω	23Ω	12Ω	*1300Ω	*1300Ω	3 Meg.	
3	12BA6	3 Meg.	44Ω	34Ω	*1300Ω	*1300Ω	82Ω		
4	12SQ7GT	INF	10 Meg.	0Ω	550KΩ	0Ω	*270KΩ	12Ω	0Ω
5	35L6GT	INF	44Ω	*110Ω	*1300Ω	1 Meg.	100Ω	65Ω	200Ω
6	35L6GT	INF	65Ω	*100Ω	*1300Ω	1 Meg.	85Ω	85Ω	200Ω

* Measured from junction of Items 45 & 59

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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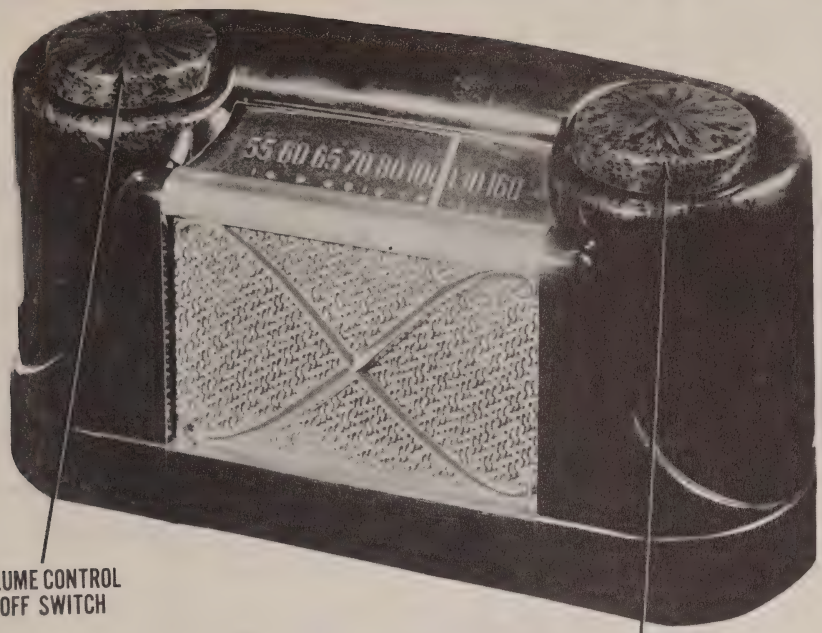
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



STEWART-WARNER
MODELS B51T1, B51T2, B51T3

STEWART-WARNER MODEL B51T2

TRADE NAME	Stewart-Warner, Models B51T1 (Code 9044-A), B51T2 (Code 9044-B), B51T3 (Code 9044-C)
MANUFACTURER	Stewart-Warner Corp., 1826 Diversey Parkway, Chicago, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna.
TUBES (FIVE)	Types 12BE6 Converter, 12BA6 IF Amp., 12AV6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	.21 MA @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low frequency end of dial.

Use isolation transformer if available. If not connect a .1 MFD. cap. in series with low side of signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	200MMF	High side to Ant stator of tuning cap. Low side to B-.	455KC	Point of non-interference	Across Voice Coil	A1,A2, A3,A4	Adjust for maximum output.
2	200MMF	High side to Ext Ant. lead. Low side to B-.	1500KC	1500KC	"	A5	" " " "
3	200MMF	"	1500KC	Tune for maximum output.	"	A6	" " " "
4	200MMF	"	600KC	600KC	"	A7	Rock tuning cap. & adjust for maximum output.

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DATE 3/49 496-22 SET #58 FOLDER #22

PARTS LIST AND DESCRIPTIONS

STEWART-WARNER MODEL B51T2

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: STEWART-WARNER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amp.	12BA6	12BA6	7BK	
V3	Det.-AVC-AF	12AV6	12AV6		
V4	Power Output	50B5	50B5	7BZ	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: STEW.-WARNER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	30	150	503655	PRS A 150/20-30	EDL2215	DSB-2X30-150	TA-230	Red Filter
C1B	20	150						Blue Filter
C2	5000	450	505873	1467-005	1D5D5	MW.5-25	IFM-25	Ext. Ant Coupling Cer.
C3	7	500	505475					Fixed Trimmer "
C4	50	500	504434	1468-00005	5W5Q5	MO.5-45	IFM-45	Osc. Grid. Cap. "
C5	7	500	505475					Fixed Trim. Cer. See Note
C6	.05	400	504444	P488-05	GT4S5	ST-4-05	68P10	AVC Filter
C7	.15	400	512157	P488-15	GT4P2	ST-4-2	72P2	Line Isolation.
C8	260	500	502271	1468-00025	5W5T25	MO.5-325	IFM-325	Diode Filter. Cer.
C9	5000	450	505873	P688-005	GT6D5	ST-6-005	68P5	Audio Coupling. Cer.
C10A	5000	450	*	P688-005	GT6D5	ST-6-005	68P5	" " "
C10B	250	450		1468-00025	5W5T25	MO.5-325	IFM-325	AF Plate Bypass. "
C11	5000	450	505873	P688-005	GT6D5	ST-6-005	68P5	Output Plate Bypass.Cer.
C12	.05	400	504444	P488-05	GT4S5	ST-4-05	68P10	Rect. RF Bypass.

* Items C10A,C10B,R7, and R8 are combined into one unit obtainable under Mfgrs. part #505858.

Note. Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STEW.-WARNER PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A B	1 Meg. Switch	½	505871 Not Req.		15/16-63-Z SW-A	Volume Control Attached at Factory.

RESISTORS

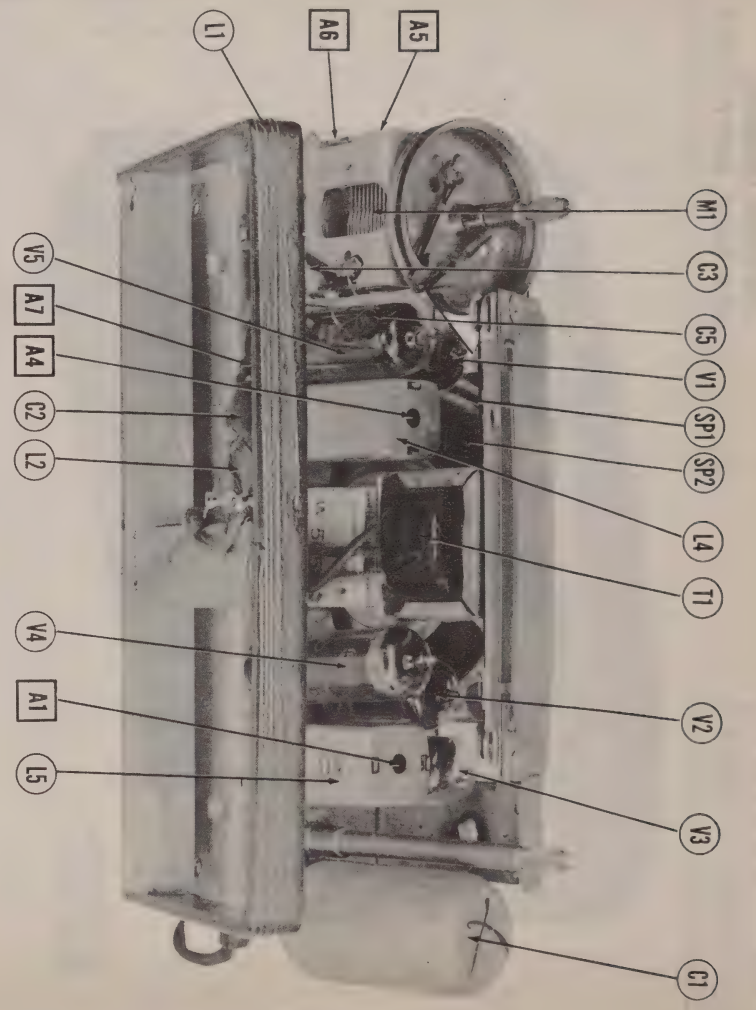
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STEWART-WARNER PART No.	IRC PART No.	IDENTIFICATION CODES	
R2	22KΩ	½	510061	BTS-22K	Red-Red-Or.	Osc. Grid.
R3	220KΩ	½	510079	BTS-220K	Red-Red-Yl.	Line Isolation.
R4	22 Meg.	½	510093	BTS-2.2 Meg.	Red-Red-Grn.	AVC Network.
R5	68Ω	½	510016	BW-½-68	Blue-Gray-Blk.	IF Cathode.
R6	3.3 Meg.	½	510094	BTS-3.3 Meg.	Or.-Or.-Grn.	AF Grid.
R7	470KΩ	½	*	BTS-470K		AF Plate.
R8	470KΩ	½	*	BTS-470K		Output Grid.
R9	150Ω	½	510421	BW-½-150	Br.-Grn.-Br.	Output Cathode.
R10	1500Ω	½	510239	BTA-1500	Br.-Grn.-Red	Filter.
R11	33Ω	1	510510		Or.-Or.-Blk.	Rectifier Ballast.

Note. Items C10A, C10B, R7, & R8 are combined into one unit obtainable under Mfgrs. Pt. #505858.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: STEWART WARNER PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	INSTALLATION NOTES
T1	2700Ω	3.8Ω	140Ω Tap @ 6Ω	.4Ω	505869				

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

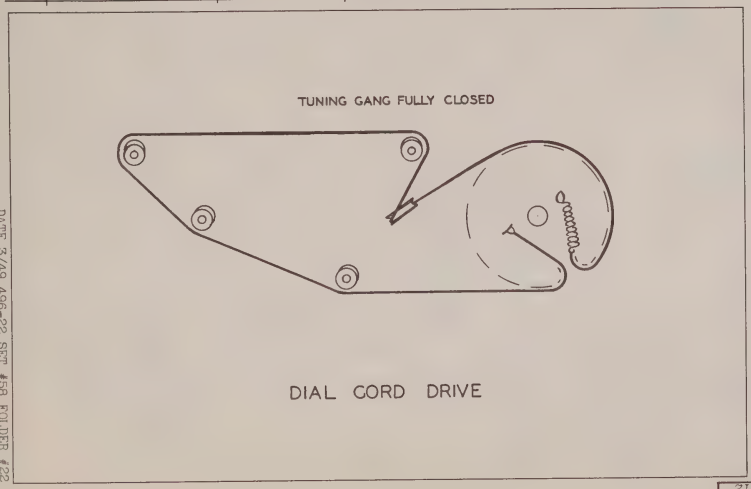
ITEM No.	RATINGS		REPLACEMENT DATA: STEWART-WARNER PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V.C. IMP		ST-113		
SP1	PM	3.8Ω	505868	MOD.P4-X	3A07	
	CONE DIA.	V.C. DIA.				
SP2	3 3/8"	9/16"				

R F COILS

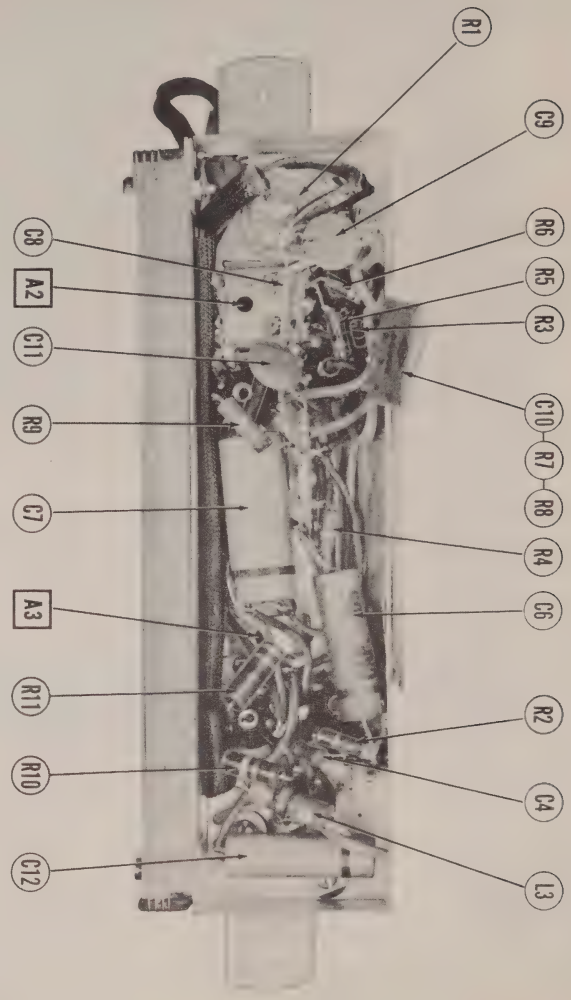
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: STEWART WARNER PART No.	MEISSNER PART No.
L1	Loop Ant.	.2Ω		505865	
L2	Loop Loading Coil.	.5Ω	2.5Ω	505874	
L3	Osc. Coil	.8Ω	9Ω	505472	
L4	Input IF	20Ω	20Ω	505867	16-6678
L5	Output IF	20Ω	20Ω	505867	16-6678

MISCELLANEOUS

ITEM No.	PART NAME	STEWART-WARNER PART No.	NOTES
M1	2 Gang Var. Cap.	505490	(16-380 MMF, 15-140 MMF)
	Dial Scale	505884	Models B51T1, B51T2
	Dial Scale	505885	Model B51T3
	Dial Pointer	505886	
	Knob	504474	Model B51T1
	Knob	504541	Model B51T2
	Knob	504470	Model B51T3



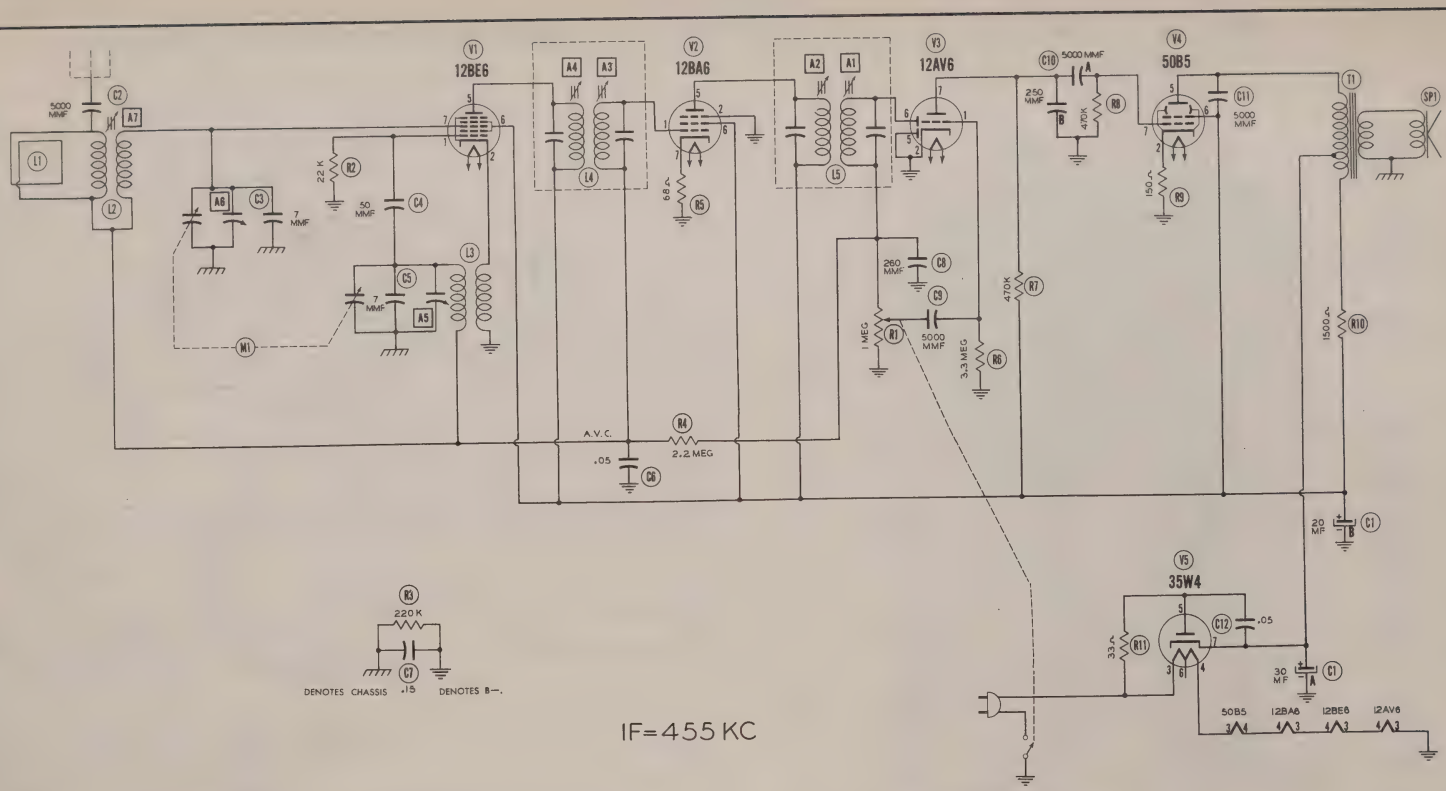
CHASSIS—BOTTOM VIEW



DATE 3/49 496-22 SST #58 FOLDER #22

STEWART-WARNER MODEL B51T2

STEWART-WARNER MODEL B51T2



IF=455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	§-5.8VDC	0V	13VAC	27VAC	90VDC	90VDC	-.2VDC
2	12BA6	-.2VDC	0V	27VAC	38VAC	90VDC	90VDC	.9VDC
3	12AV6	-.6VDC	0V	0V	13VAC	0V	-.6VDC	40VDC
4	50B5	0V	5.9VDC	63VAC	38VAC	120VDC	90VDC	0V
5	35W4	125VDC	0V	117VAC	63VAC	115VAC	90VAC	125VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	22KΩ	.6Ω	13Ω	25Ω	*1.5KΩ	*1.5KΩ	2.5 Meg.
2	12BA6	2.5 Meg.	0Ω	25Ω	35Ω	*1.5KΩ	*1.5KΩ	68Ω
3	12AV6	3.3 Meg.	0Ω	0Ω	12Ω	0Ω	1 Meg.	*470KΩ
4	50B5	INF	150Ω	80Ω	35Ω	*140Ω	*1.5KΩ	470KΩ
5	35W4	INF	INF	110Ω	80Ω	150Ω	50Ω	INF

* Measured from pin 7 of V5 (35W4)

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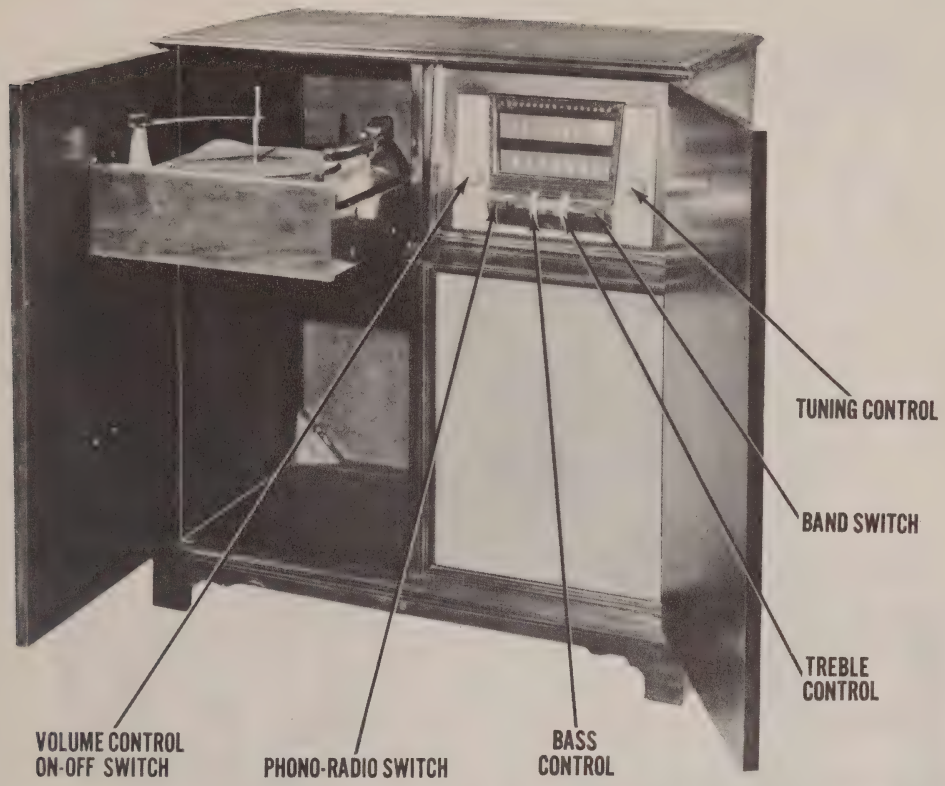
496-22

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

STROMBERG-CARLSON MODELS 1407PFM, 1407PLM



STROMBERG-CARLSON MODEL, 1407PFM

TRADE NAME	Stromberg-Carlson, Models 1407PFM, 1407PLM		
MANUFACTURER	Stromberg-Carlson Co. 100 Carlson Rd., Rochester 3, New York		
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Antenna.		
TUBES (TEN)	Types 6BA6 FM RF Amp., 6BA6 AM RF Amp., 12AT7 FM Converter, 6BE6 AM Converter, 6BA6 IF Amp., 6BA6 FM 2nd IF Amp., 6AL5 FM Detector, 6AV6 AM DET-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier.		
POWER SUPPLY	110-120 Volts AC	RATING	.72 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	535-1630KC	FREQ. MOD.	87-109MC

STROMBERG-CARLSON MODELS 1407PFM, 1407PLM

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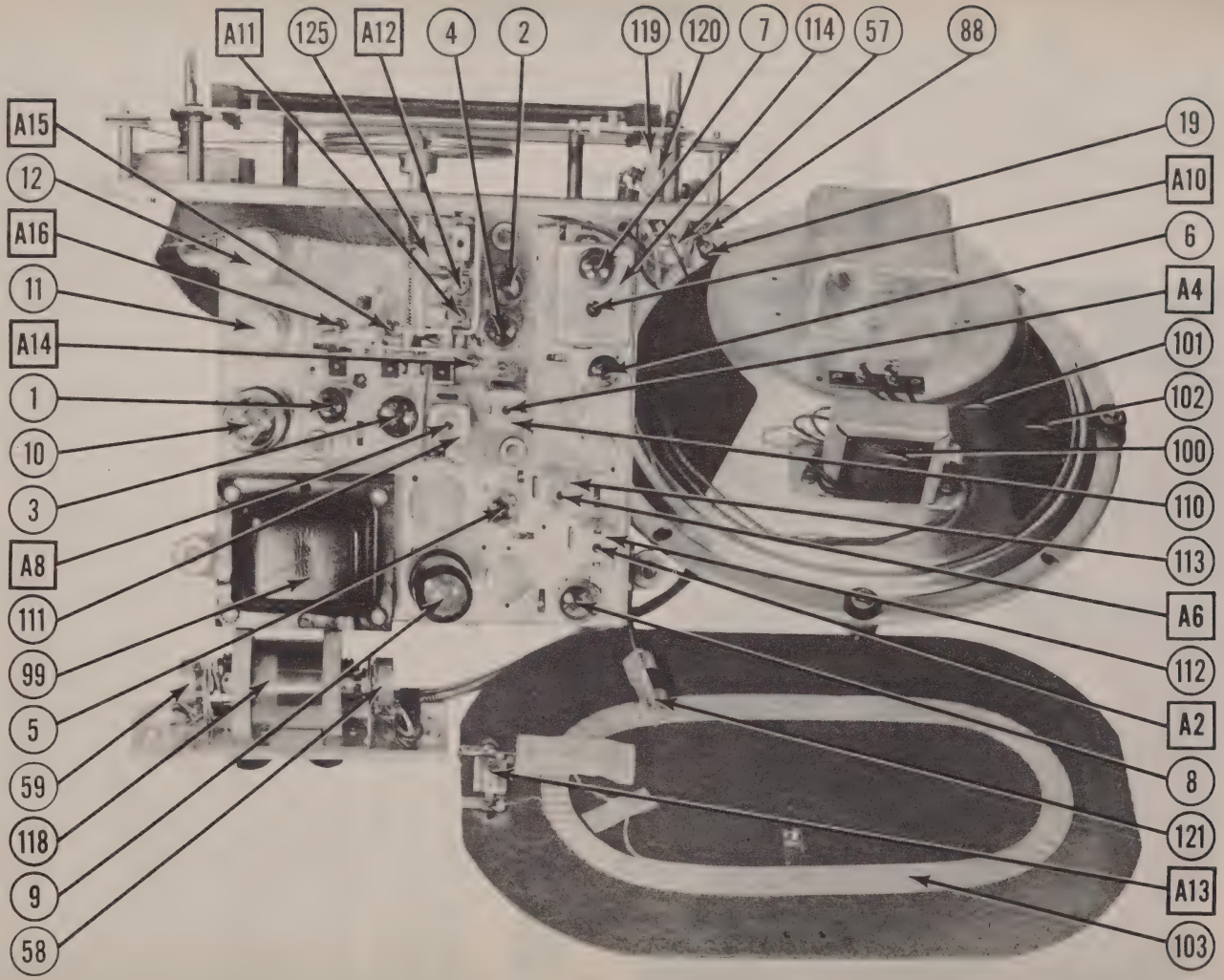
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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: STROMBERG CARLSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	FM RF Amp.	6BA6	6BA6	7BK	
2	AM RF Amp.	6BA6	6BA6	7BK	
3	FM Converter	12AT7	12AT7		
4	AM Converter	6BE6	6BE6	7CH	
5	1st IF Amp.	6BA6	6BA6	7BK	
6	FM 2nd IF Amp.	6BA6	6BA6	7BK	
7	FM Detector	6AL5	6AL5	6BT	
8	AM Det.-AVC-AF	6AV6	6AV6	7BT	
9	Power Output	6V6GT	6V6GT	7AC	
10	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: STROMBERG-CARLSON PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
11A	20	400	111046	AF44J	UP2245	DY-2X20-450	EL-220	■ Filter.
11B	20	400						▲ Filter.
12A	40	350	111045	AF44J4A*	UP4045C	DY-312*	D12959	■ Filter.
12B	25	25						▲ Filter.
13	5	50	111047	PRS 150/4	BR550	M-4-450	TA-55	Stabilizing Cap.
14	.0022	600	110551	684-002	GT6D2	ST-6-002	TC-22	Output Plate Bypass.
15	.01	600	110555	684-01	GT6S1	ST-6-01	TC-11	Audio Coupling.
16	.005	600	27760	684-005	GT6D5	ST-6-005	TC-25	" "
17	.01	400	110540	484-01	GT4S1	ST-4-01	TC-11	" "
18	.01	600	110555	684-01	GT6S1	ST-6-01	TC-11	Tone Compensation.
19	.022	400	110542	484-02	GT4S2	ST-4-02	TC-12	" "
20	.0022	400	110536	484-002	GT6D2	ST-6-002	TC-22	" "
21	.1	400	25483	484-.1	GT4P1	ST-4-1	TC-1	AF Plate Decoupling.
22	.003	400	46315	484-003	GT6D3	ST-6-003	TC-23	De-emphasis.
23	.005	600	27760	684-005	GT6D5	ST-6-005	TC-25	1st IF Plate Decoup.
24	.01	400	110540	484-01	GT4S1	ST-4-01	TC-11	Filament Bypass.
25	.005	600	27760	684-005	GT6D5	ST-6-005	TC-25	AVC Filter.
26	.01	400	110540	484-01	GT4S1	ST-4-01	TC-11	" "
27	.0047	400	110538	484-005	GT6D5	ST-6-005	TC-25	" "
28	.01	400	110540	484-01	GT4S1	ST-4-01	TC-11	Screen Decoupling.
29	.01	600		684-01	GT6S1	ST-6-01	TC-11	Line Filter. See note.
30	330	300	110454	1468-00035	5W5T3	MO.5-33	1FM-335	AF Plate Bypass. Cer.
31	750	300	110456	1468-00075	1W5T8	MO.5-38	1FM-37	Phono Coupling. Cer.
32	5000	300	110586	1467-005	1D5D5	MW.5-25	1FM-25	2nd IF Plate Decoup. Cer.
33	5000	300	110586	1467-005	1D5D5	MW.5-25	1FM-25	" " Screen Bypass Cer.
34	5000	300	110586	1467-005	1D5D5	MW.5-25	1FM-25	" " Cathode Bypass Cer.
35	100	300	110451	1468-0001	5W5T1	MO.5-31	1FM-31	Diode Filter. "
36	100	300	110451	1468-0001	5W5T1	MO.5-31	1FM-31	" " "
37	5000	300	110586	1467-005	1D5D5	MW.5-25	1FM-25	1st IF Screen Bypass Cer.
38	5	300	110593	1469-000005	5R5V5	MOS.5-55	MS-55	Fixed Trimmer. "
39	47	300	110402	1468-00005	5W5Q5	MO.5-45	1FM-45	Osc. Grid Cap. "
40	5	300		1468-000005	5W5V5	MO.5-55	MS-55	Osc. Feedback. " See note.
41	5000	300	110586	1467-005	1D5D5	MW.5-25	1FM-25	FM Conv. Plate Decoupling. Cer.
42	1500	300	110457	1467-0015	1W5D15	MW.5-215	1FM-215	" Osc. Plate Bypass. Cer.
43	47	300	110402	1468-00005	5W5Q5	MO.5-45	1FM-45	Osc. Grid Cap. Cer.
44	24	300	110592	1468-000025	5W5Q25	MO.5-425	MS-425	Osc. Feedback. "
45	24	300	110403	1468-000025	5W5Q25	MO.5-425	MS-425	" " "
46	5000	300	110586	1467-005	1D5D5	MW.5-25	1FM-25	FM Conv. Cath. Bypass. Cer.
47	1.5	300	110438					Osc. Coupling. Cer.
48	15	300	110405				MS-415	Fixed Trimmer. "
49	100	300	110451	1468-0001	5W5T1	MO.5-31	1FM-31	RF Coupling. "
50	5000	300	110586	1467-005	1D5D5	MW.5-25	1FM-25	FM RF Plate Decoupling. Cer.
51	5000	300	110586	1467-005	1D5D5	MW.5-25	1FM-25	RF Screen Bypass. Cer.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: STROMBERG-CARLSON PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	REPLACEMENT DATA: MERIT PART No.
99	117 VAC	650 VCT	5.1 VAC	6.5 VAC	161415	P-6012 ‡	T22R04	P-2652
	@ .72A	.095ADC	@ 2.0A	@ 3.5A				

‡ Add series resistor to reduce plate voltage.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: STROMBERG-CARLSON PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
100	5400Ω	6.0Ω	260Ω	.3Ω	161239		T22S56	A-2904 ‡	‡ Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: STROMBERG CARLSON PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	INSTALLATION NOTES
101	FIELD	V.C. IMP.		ST-102		
	PM	6.0Ω	155065	MOD P12-S	12A6	
102	CONE DIA.	V.C. DIA.				
	11 3/4"	1 1/4"				

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: STROMBERG-CARLSON PART No.	REPLACEMENT DATA: MEISSNER PART No.	
103	AM Loop Ant.		1Ω	139028		
104	FM Dipole Ant.		0Ω			Items 105,107, & 109 are slug tuned and ganged together.
105	FM Ant.Coil		0Ω	114053		
106	AM RF Coil	.8Ω	8Ω	114052		
107	FM RF Coil		0Ω	114054		
108	AM Osc.Coil		6Ω	114051		
109	FM Osc.Coil		0Ω	114054		
110	AM 1st IF	16Ω	15.5Ω	114364	16-6678	
111	FM 1st IF	1Ω	1Ω	114363		
112	AM 2nd IF	16Ω	15.5Ω	114364	16-6678	
113	FM 2nd IF	1Ω	1Ω	114363		
114	Ratio Det.	1Ω		114365		
115	RF Plate Chk.		0Ω	114633		
116	Osc. Cath. Chk.		0Ω	114620		
117	Fil. Choke		0Ω	114621		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: STROMBERG-CARLSON PART No.	REPLACEMENT DATA	NOTES
118	Bayonet	6-8 V	0.25	Blue	29956		Type #44
119	"	"	"	"	29956		"
120	"	"	"	"	29956		"
121	Screw	6-8 V	0.25	Blue	18630		Type #46

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA: STROMBERG CARLSON PART No.	REPLACEMENT DATA: ASTATIC PART No.	REMARKS
122		LT-1M	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	STROMBERG-CARLSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	
52	5000	300	110586	1467-005	1D5D5	MW.5-25	1FM-25	RF Cathode.Bypass. Cer.
53	100	300	110451	1468-0001	5W5T1	MO.5-31	1FM-31	RF Coupling. Cer.
54	20	300	110025		5R5Q2	MOS.5-42	MS-42	Fixed Trimmer. Cer.
55	220	300	110453	1468-0002	5W5T2	MO.5-32	1FM-32	RF Coupling. Cer.
56	100	300	110451	1468-0001	5W5T1	MO.5-31	1FM-31	" " "

* Parallel sections to obtain desired capacity.
Note. Not used in all models.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	STROMBERG CARLSON PART No.	IRC PART No.	CLAROSTAT PART No.	
57	2 Meg.	½	145059			Volume Control tapped @ 200K & 1.2 Meg. with AC Switch.
58	1 Meg.	½	145057			Treble Control.
59A	2 Meg.	½	145060	D13-139	M-66-Z	Bass Control.
B	Shaft		Not Req.	A	Not Req.	Attach to 59A per Instructions.

RESISTORS

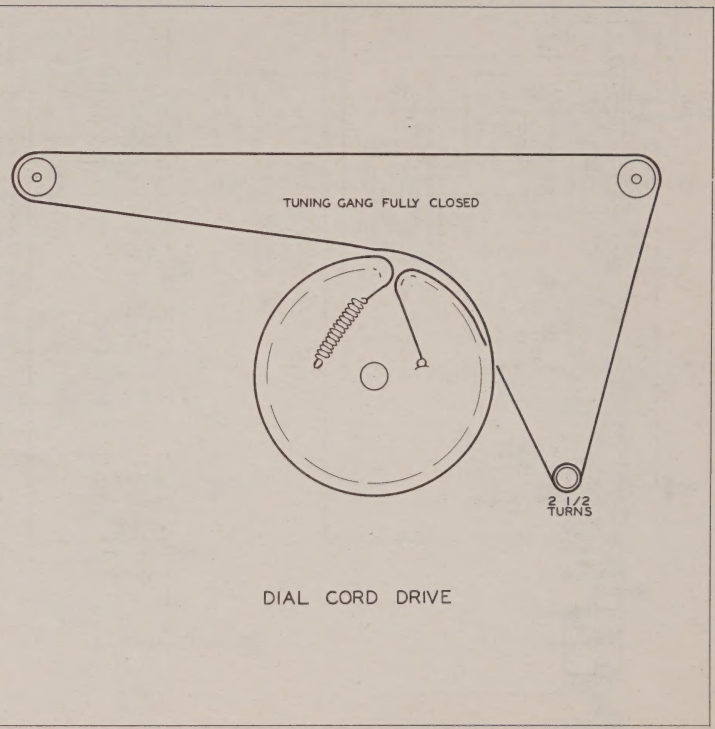
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	STROMBERG-CARLSON PART No.	IRC PART No.		
60	1 Meg.	½	149119	BTS-1 Meg.	Br.-Blk.-Grn.	FM RF Grid.
61	2.2 Meg.	½	28195	BTS-2.2 Meg.	Red-Red-Grn.	" " "
62	68Ω	½	28144		Blue-Gray-Blk.	" " Cathode.
63	22KΩ	1	149188	BTA-22K	Red-Red-Or.	" " Screen Dropping.
64	39KΩ	½	28176	BTS-39K	Or.-White-Or.	" " " Bleeder.
65	1000Ω	½	149101	BTS-1000	Br.-Blk.-Red.	" " Plate Decoupling.
66	2200Ω	½	28162	BTS-2200	Red-Red-Red	AM Conv. Cathode.
67	47KΩ	½	28177	BTS-47K	Yl.-Vi.-Or.	" " Plate Decoupling.
68	10KΩ	½	149107	BTS-10K	Br.-Blk.-Or.	" Osc. Grid.
69	1000Ω	½	149101	BTS-1000	Br.-Blk.-Red	" " Plate.
70	1 Meg.	½	149107	BTS-1 Meg.	Br.-Blk.-Grn.	" RF Grid.
71	68Ω	½	28144	BW-½-68	Blue-Gray-Blk.	" " Cathode.
72	5600Ω	1	149194	BTA-5600	Grn.-Blue-Red	" " Plate.
73	10KΩ	½	149107	BTS-10K	Br.-Blk.-Or.	AVC Net.
74	22KΩ	½	149109	BTS-22K	Red-Red-Or.	AM Osc. Grid.
75	12KΩ	2	149055	BT-2-12K	Br.-Red-Or.	Screen Dropping.
76	47KΩ	½	149111	BTS-47K	Yl.-Vi.-Or.	AVC Net.
77	68Ω	½	28144		Blue-Gray-Blk.	1st IF Cathode.
78	22KΩ	1	149188	BTA-22K	Red-Red-Or.	" " Screen.
79	1000Ω	½	149101	BTS-1000	Br.-Blk.-Red	" " Plate Dropping.
80	2.2 Meg.	½	149121	BTS-2.2 Meg.	Red-Red-Grn.	AVC Net.
81	270KΩ	½	28184	BTS-270K	Red-Vi.-Yl.	Diode Filter.
82	270KΩ	½	28184	BTS-270K	Red-Vi.-Yl.	" Load.
83	68Ω	½	28144		Blue-Gray-Blk.	2nd IF Cathode.
84	22KΩ	½		BTS-22K	Red-Red-Or.	" " Screen.
85	1000Ω	½	149101	BTS-1000	Br.-Blk.-Red.	" " Plate Decoupling.
86	470KΩ	½	149188	BTS-470K	Yl.-Vi.-Yl.	AVC Net.
87	56KΩ	½	28178	BTS-56K	Grn.-Blue-Or.	Tone Compensation.
88	10KΩ	½	149107	BTS-10K	Br.-Blk.-Or.	"
89	10 Meg.	½	149125	BTS-10 Meg.	Br.-Blk.-Blue	AF Grid.
90	270KΩ	½	28184	BTS-270K	Red-Vi.-Yl.	" Plate Load.
91	100KΩ	½	149113	BTS-100K	Br.-Blk.-Yl.	" " Decoupling.
92	470KΩ	½	149123	BTS-470K	Yl.-Vi.-Yl.	Output Grid.
93	270Ω	1	149170	BW-1-270	Red-Vi.-Br.	" Cathode.
94	1000Ω	½	149101	BTS-1000	Br.-Blk.-Red	Parasitic Supp.
95	2700Ω	2	149286	BT-2-2700	Red-Vi.-Red	Filter.
96	2700Ω	2	149286	BT-2-2700	Red-Vi.-Red	"
97	150Ω	2	149036	BW-2-150	Br.-Grn.-Br.	"
98	4.7Ω	1	149282	BW-1-4.7	Yl.-Vi.-Gold	Series Tone Ind. Light.

DATE 3/49 496-23 SET #58 FOLDER #23

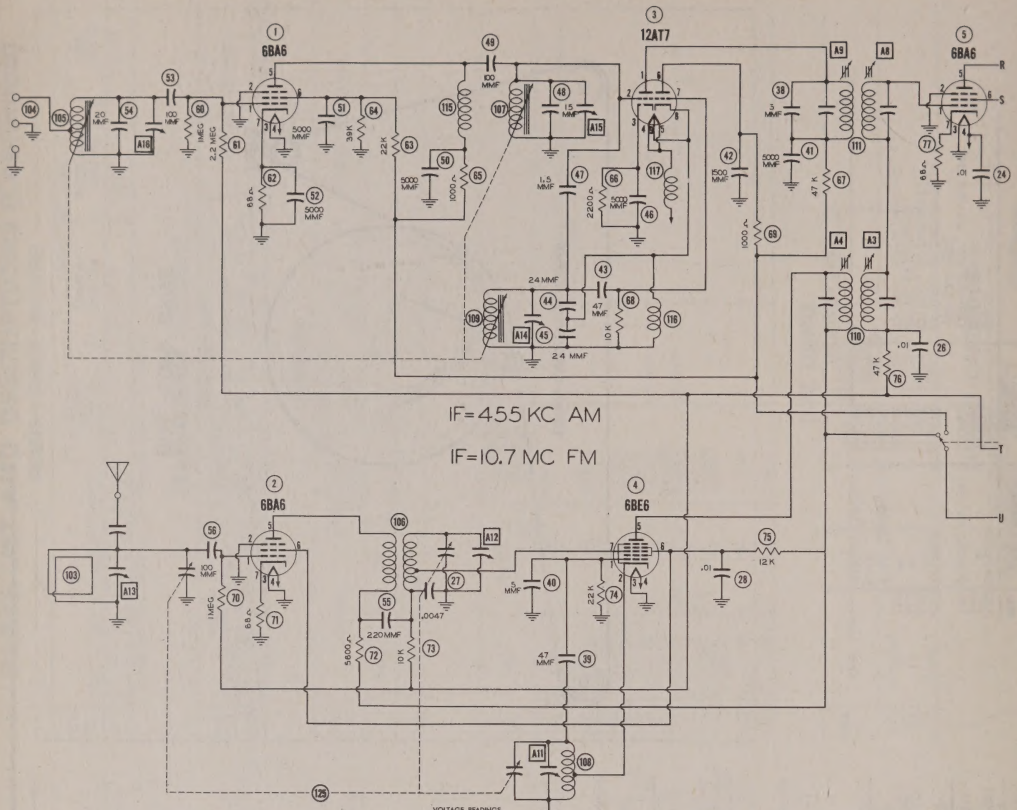
PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	STROMBERG CARLSON PART No.	NOTES
123	Switch	158031	Band.
124	"	158032	Radio-Phono.
125	3 Gang Var.Cap.	110029	(24-482 MMF, 21-290 MMF, 22-135 MMF)
A13	Trimmer	110031	BC Ant. Adjustment.
A14	"	110025	FM Osc. Adjustment.
A15	"	110025	FM RF Adjustment.
A16	"	110025	FM Ant. Adjustment.
	Dial Glass	122031	
	Knob	134059	
	Dial Pointer	144017	



DIAL CORD DRIVE



VOLTAGE READINGS

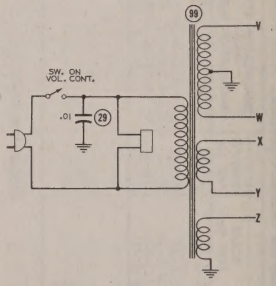
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
‡1	6BA6	-.1VDC	0V	0V	6.5VAC	215VDC	90VDC	.8VDC		
2	6BA6	-.3VDC	0V	0V	6.5VAC	205VDC	110VDC	.6VDC		
‡3	12AT7	150VDC	0V	3.8VDC	6.5VAC	8.5VAC	215VDC	4-3.8VDC	0V	0V
4	6BE6	3-12.5VDC	0V	0V	6.5VAC	230VDC	110VDC	-.2VDC		
5	6BA6	-.6VDC	0V	6.5VAC	0V	220VDC	150VDC	1.1VDC		
‡6	6BA6	0V	0V	0V	6.5VAC	210VDC	110VDC	1.1VDC		
‡7	6AL5	*	*	0V	6.5VAC	0V	0V	-.7VDC		
8	6AV6	-.7VDC	0V	0V	6.5VAC	-.5VDC	-.5VDC	100VDC		
9	6V6GT	0V	0V	310VDC	235VDC	0V	0V	6.5VAC	11VDC	
10	5Y3GT	0V	320VDC	0V	325VAC	0V	325VAC	0V	320VDC	

‡TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
‡1	6BA6	800KΩ	0Ω	0Ω	.1Ω	40KΩ	35KΩ	68Ω		
2	6BA6	2.5Meg.	0Ω	0Ω	.1Ω	39KΩ	45KΩ	68Ω		
‡3	12AT7	92KΩ	0Ω	2.2KΩ	.1Ω	.1Ω	46KΩ	10KΩ	0Ω	0Ω
4	6BE6	22KΩ	.5Ω	0Ω	.1Ω	33KΩ	45KΩ	1.4Meg.		
5	6BA6	1.4Meg.	0Ω	.1Ω	0Ω	34KΩ	55KΩ	68Ω		
‡6	6BA6	1Ω	0Ω	0Ω	.1Ω	46KΩ	67KΩ	68Ω		
‡7	6AL5	Inf.	Inf.	0Ω	.1Ω	0Ω	0Ω	14KΩ		
8	6AV6	10 Meg.	0Ω	0Ω	.1Ω	520KΩ	520KΩ	400KΩ		
9	6V6GT	Inf.	0Ω	30KΩ	33KΩ	470KΩ	470KΩ	.1Ω	270Ω	
10	5Y3GT	Inf.	30KΩ	Inf.	160Ω	Inf.	150Ω	Inf.	30KΩ	

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.
RADIO-PHONO SWITCH IN RADIO POSITION.
‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.
*Voltage reading of -.3VDC at audio output terminal of FM Det. to transformer. Other voltage readings taken at accessible points on terminals of same transformer.



1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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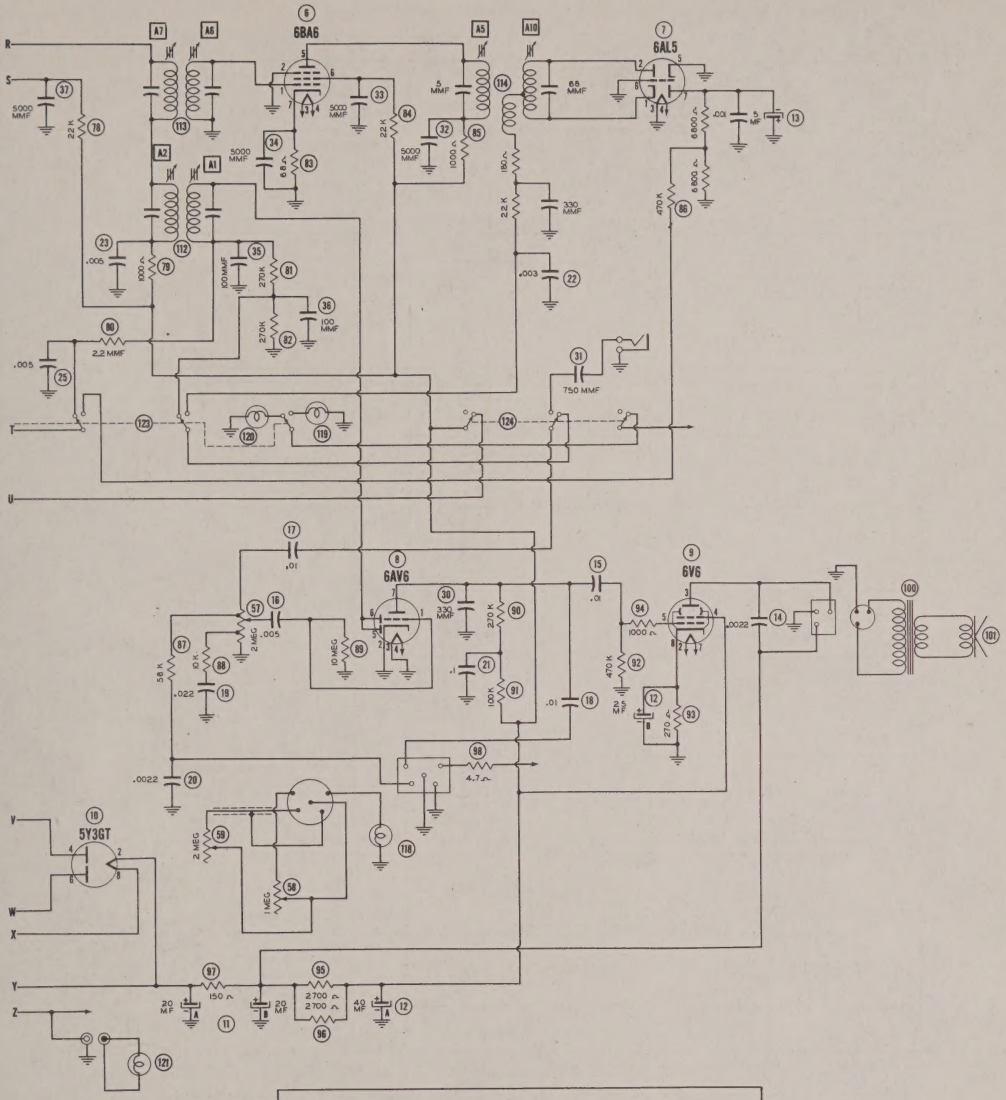

STAGE GAIN MEASUREMENTS

RF GRID-CONV GRID	6X	600KC	IF TUBE	200X	455KC
CONV GAIN	20X	IN 600KC OUT 455KC	OUT IF TRANS	1X	455KC
IN IF TRANS	2X	455KC	AUDIO	40X	400∿
			OUTPUT	30X	400∿

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer, turn tuning cap. fully closed and set pointer to marker at top left edge of dial.

If alignment is necessary on either AM or FM IF circuits, both alignments should be completed.

Use an insulated alignment screwdriver for adjusting. Do not exert excessive pressure when adjusting IF slugs.

AM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Use only enough signal input to obtain a satisfactory VTVM reading on 3VDC scale.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1	.01MFD	High side to Pin 7(Grid) of 6BE6. Low side to chassis.	455KC	BC	Tuning cap. fully closed	D.C. Probe to point (A). Common to chassis.	A1,A2, A3,A4	Adjust for maximum deflection.

AM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use Frequency Modulation signal with 60∿ modulation and 15KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
1	.01MFD	High side to pin 7(Grid) of 6BE6. Low side to chassis.	455KC freq.Mod.	BC	Tuning cap. fully closed	Vertical input to point (A). Ground to chassis.	A1,A2, A3,A4	Adjust for maximum amplitude,symmetry and coincidence of pattern per Fig. 1. Continue with FM-IF Alignment in step 2.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Use 3 volt scale on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
2	.01MFD	High side to pin 2(Grid) of 12AT7. Low side to chassis.	10.7 MC (400∿ Amp. modulation).	FM	Tuning Slugs fully in	D.C.Probe to point (A). Common to chassis.	A5,A6, A7,A8, A9	Detune A10 Several turns. Adjust A5 thru A9 for maximum deflection.
3.	.01MFD	"	10.7 MC (400∿ Amp. modulation).	"	"	D.C.Probe to point (A). Common to point B .	A10	Adjust for zero deflection. Continue with AM-RF Alignment in step 4.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use Frequency Modulation signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
2	.01 MFD	High side to pin 2(Grid) of 12AT7. Low side to chassis.	10.7 MC (Freq.Mod)	FM	Tuning slugs fully in.	Vertical input to point (C). Ground to chassis.	A5,A6, A7,A8, A9	Disconnect 5MFD cap.(13) from point C . Adjust A5 thru A9 for maximum amplitude,symmetry and coincidence of pattern per Fig. 2. Reconnect cap. (13) to point C .
3	.01 MFD	"	10.7 MC (Freq.Mod)	"	"	Vertical input to point (A). Ground to chassis.	A10	Adjust for crossover of diagonal lines ocourring at center of scope horizontal sweepline per Fig. 3. Continue with AM-RF alignment in step 4.

AM RF ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Use only enough signal input to obtain a satisfactory VTVM reading on 3VDC scale.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4		Loop	1500KC	BC	1500KC	D.C.Probe to point (A). Common to chassis.	A11	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A11 for maximum deflection.
5		"	1500KC	BC	Tune for maximum deflection.	"	A12 A13	Adjust for maximum deflection.

FM RF ALIGNMENT

If FM oscillator coil is replaced, adjust placement of its ground lead for correct tracking at 88 MC.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6	270Ω Carbon Resistor.	High side to ungrounded FM Ant. terminal. Low side to chassis.	100 MC (400∿ Amp Mod.)	FM	100 MC	D.C.Probe to point (A). Common to chassis.	A14	Adjust for maximum deflection.
7	270Ω Carbon Resistor.	"	100 MC (400∿ Amp Mod.)	"	Tune for maximum deflection.	"	A15, A16	Rock tuning control and adjust A15, A16for maximum deflection.

With receiver reinstalled in cabinet, tune in weak station near 1500KC and adjust A13 for maximum volume.

FIG. 1

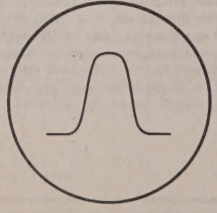

FIG. 2

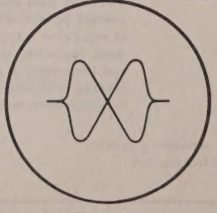

FIG. 3